ON MODERN ORIGINS

Essays in Early Modern Philosophy

Richard Kennington

Edited by
Pamela Kraus and Frank Hunt

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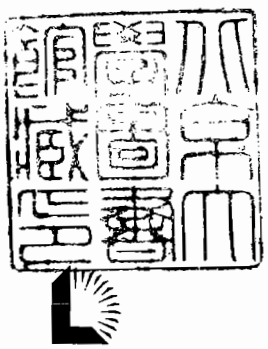

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Prefatory Note

Richard Kennington began to assemble essays for a volume of his writings in the year before his death in 1999. Most of the essays that appear here he chose himself. The volume includes essays in three general categories. There are eight previously published essays. Three essays ("Bacon's Humanitarian Revision of Machiavelli," "Cartesian Rationalism and Eternal Truths," and "Nature and Natural Right in Locke") were in varying states of readiness for publication before we began to edit them. The remaining essays—three lectures ("Bacon's Ontology," "Descartes's *Discourse on Method*," and "On the Intention of Leibniz") and one letter ("Laws of Nature")—were unrevised by the author. We edited all essays so as to achieve a consistent mode of citation throughout. We wished, however, to preserve something of the spoken character of the unrevised lectures, and did not seek to bring them into conformity with the more formal presentation of previously published or publication-ready pieces.

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A NOTE ON CITATION

Unless otherwise indicated, citations of writings of Francis Bacon are from *The Works of Francis Bacon*, ed. J. Spedding, R. L. Ellis, and D. D. Heath, 14 vols. (London: Longmans, 1857–1874; Stuttgart-Bad Cannstatt, 1963), by volume and page number. Citations to the writings of René Descartes are

by volume and page number from *Oeuvres de Descartes*, ed. C. Adam and P. Tannery, 12 vols. (Paris: J. Vrin, 1957–1958), abbreviated AT. One or both of the following English translations are also cited with volume and page number: *The Philosophical Works of Descartes*, ed. E. S. Haldane and G. R. T. Ross, 2 vols. (Cambridge: Cambridge University Press, 1979), abbreviated HR; and *The Philosophical Writings of Descartes*, ed. J. Cottingham, R. Stoothoff, and D. Murdoch, 3 vols. (Cambridge: Cambridge University Press, 1985), abbreviated CSM.

Introduction

Richard Kennington's work is a sustained examination of the most characteristic claim of early modern philosophers—that modern philosophy is superior to and supersedes the tradition rooted in classical philosophy. The studies that make up this volume are not merely of historical import. Kennington regarded them as a critically necessary component in understanding and evaluating a contemporary crisis in philosophy. Rational standards of judgment and argument, the meaning and significance of philosophy, its claim to comprehensiveness, and its aim at wisdom had been called into question, most radically since Nietzsche. Kennington first became acutely aware of this crisis through his teachers—men like Kurt Riezler, Hans Jonas, Leo Strauss, and Karl Löwith, and others who fled Germany in the thirties—and joined them in seeking its roots. While some thinkers, notably Heidegger, claimed that these roots could be found in classical philosophy itself, Strauss and Jonas traced the crisis as received by us today to the inception of modern philosophy.[1]

Strauss in particular emphasized the essential difference of modern from ancient philosophy and pointed to the possibility of recovering the "genuine" sense of classical philosophy as an alternative. For him, modernity began with Machiavelli. Strauss, however, never directly addressed what became the core of modern philosophy, modern natural science, and the philosophical account of nature that underwrites it. Kennington sought to bring to light the meaning of modern philosophy by investigating the philosophical texts that made a radical break with the premodern tradition and proclaimed as a constituent of philosophy the new natural science and its discoveries aimed at the improvement of the human condition.

These essays were written over a period of forty years and range from published pieces to lectures. They nevertheless share a unifying idea—that there

is a specifically modern understanding of philosophy, one to which the new understanding of nature is central and in which a new notion of theory is combined with a practical or humanitarian goal. This modern understanding was for Kennington a genuine and original, if not unquestionably superior, alternative to premodern philosophy.[2] Kennington began his work on Descartes but what he found at the heart of the Cartesian project itself led him to see Descartes and Francis Bacon as co-founders of the modern understanding. The modern turn initiated by Bacon and Descartes was both fundamental and lasting, as appears from the "second wave" of modern philosophy that includes Spinoza, Locke, and Leibniz: as the essays on those thinkers show they accept the structure of the new philosophy as their own even in their critiques of Descartes's physics and metaphysics, and in the case of Leibniz even in the midst of his attempt to harmonize ancient and modern thought.

The essays center on the work of Bacon and Descartes, as the two thinkers responsible for the decisive break with the tradition. Modern philosophy is often said to begin with the publication of Descartes's *Discourse on Method* (1637) and its beginning in "Cartesian doubt," but may be traced back, Kennington found, to Bacon's *New Organon* (1620), which presents the first comprehensive critique of the classical tradition. Aristotle's *Organon* had supplied the original "logic" for that tradition, including its continuation in medieval Scholasticism. The *New Organon*, the foundational part of Bacon's never-completed *Great Instauration*, is meant to supplant the "old" Aristotelian *Organon* and thereby make possible a "total reconstruction of sciences, arts, and all human knowledge, raised upon the proper foundations." Descartes's *Discourse* is similarly meant to outline, in contrast to the procedure of the "Schools," the "method of rightly conducting the reason and seeking truth in the sciences"—a method that will permit the establishment of philosophy or science on new and solid foundations.[3]

Bacon's threefold critique targets classical philosophy in its manner of inquiry, its starting point, and its goal (A 19). Through this critique Bacon establishes the guiding characteristics, shared by Descartes, that distinguish the new philosophy from the old: (1) a new way of inquiry that provides an epistemological guarantee for knowledge independent of metaphysical underpinnings and brings the knower or "subject" into a prominence it had not before possessed, (2) a new starting point that turns away from ordinary human experience to delimit a realm of phenomena governed by "laws" of nature in a sense unknown to classical philosophy, and (3) a new understanding of the philosophic goal that replaces the classical goal of inquiry for its own sake with one in which theory and practice are inseparable. A brief examination of each of these characteristics in turn may serve to introduce some principal themes of the essays that follow.

The way of inquiry. For Plato and Aristotle, the quest for knowledge had the character of an ascent from opinion or our ordinary experience of things to the first principles of those things and ultimately of the whole. Only in a subsequent descent from first principles might the opinions or experiences with which we began be truly known. For Bacon and Descartes, in contrast, the right "method" or "way" of inquiry[4] will guarantee knowledge at any stage, without the necessity of an ascent from ordinary experience or opinion to unavailable first principles of the whole. In Bacon's description, the ancient manner of inquiry (traceable to Aristotle) was twofold: an ascent, or pretended ascent, from a few erroneous examples and particulars to the most general conclusions or first principles of science—supposed first principles of beings—was followed by an equally precipitous descent to "inferior conclusions" (A 114–15). Bacon promises instead a regular and gradual ascent from one "axiom" to another—an ascent in which genuine knowledge is possible at every stage, guaranteed not by knowledge of first principles of beings but by experimental method itself (A 20, 43–44). Descartes's *Rules for the Direction of the Mind* (1628) argues in Rule 4 that "a method is required in order to search for the truth of things." Rule 6, which contains "the main secret" of the method, instructs us to arrange things serially in groups "not insofar as they can be referred to some genus of being . . . but insofar as some things can be known on the basis of others": method instructs us to seek what is prior not in the order of being but in the order of knowing (AT 10:371, 21). In this the *Rules* anticipates *Discourse* 2, which introduces a method superior to that of the tradition and modeled on mathematics (AT 6:18–20). Method has a narrower and a broader sense. Although, as Kennington observes, the word does not appear until the nineteenth century, Descartes's *Discourse* is already a "methodology" in the sense of a *logos* of method, for it includes, among other things, an account of the necessity of method. What is significant here is not the particulars of Baconian or Cartesian method in the narrower sense of rules of procedure, much less the particulars of Baconian or Cartesian science, but the idea of method itself as providing an epistemological guarantee for knowledge independent of metaphysical underpinnings. Modern "foundationalism" is in this sense "metaphysically neutral."[5]

Classical philosophy saw the natural whole as in general beneficent and amenable to the natural human desire to know it: the human mind following its natural bent is already on the way to truth. In the medieval theology of Thomas Aquinas and others this view survived in the doctrine that the natural whole is the good creation of a beneficent God. The turn to method in early modern philosophy, on the other hand, presupposes that the human mind left to itself, while endowed with a "natural intelligence," lacks "direction" and will fail to reach the truth, or that the human intellect left to its own

course is not to be trusted owing to a disproportion between the mind of man and the nature of things, a disproportion to be repaired only by art or method (AT 10:359; A 3, 12–13). This in turn implies a view of nature or of the natural whole as nonbenevolent, as indifferent if not hostile to any human aspiration to know the whole. Inquiry must become active rather than receptive. So Kant will say of the "intellectual revolution" partly initiated, partly inspired by Bacon that "a light broke upon all students of nature. They learned that reason has insight only into that which it produces after a plan of its own, and that it must not allow itself to be kept, as it were, in nature's leading-strings, but must itself show the way with principles of judgment based upon fixed laws, constraining nature to give answer to questions of reason's own determining."[6] The early modern turn is in this sense liberating, a turn to "human self-assertion": Bacon's "way" as opposed to that of the tradition "leads out at last into the open country" (A 4).[7]

The starting point. Classical natural philosophy in its Aristotelian form had taken as its starting point our pretheoretical experience of the world as articulated into natural kinds of things: inanimate and animate beings, for example, and within the latter dogs, oak trees, human beings. The turn to method represents a rejection of this classical orientation by natural kinds of things as they present themselves to ordinary human experience. Bacon begins not with experience of nature in its "common and ordinary course" but with nature "under constraint and vexed," or with experiment, "wherein the sense decides touching the experiment only, and the experiment touching the point in nature and the thing itself" (A 22, 53, 129). The orientation by natural kinds is to be rejected because it obstructs access to more fundamental phenomena, such as heat and light, that cut across natural kinds: heat is the same whether it occurs in an animal body, fire, or the sun. It is of these phenomena, which Bacon calls "simple natures,"[8] that Baconian science seeks "laws." The whole movement of Baconian science is one of flight from the *Lebenswelt*—of escape from the "ordinary course of nature" to the realm of laws of nature, its true object.[9] So too Cartesian doubt suspends not reason as a whole[10] but our natural orientation towards the natural kinds, in order to replace it with a science of the "world" understood as homogeneous body or extension governed by mathematical "laws of nature." Today the world governed by mathematical laws of nature has to a large extent supplanted the world of pretheoretical human experience.[11]

What is true of Bacon's laws of nature is a fortiori true of laws of nature in the mathematical form they receive in Descartes and Newton. Descartes's physics, like Bacon's, has difficulty accounting for either individual beings or the heterogeneity of natural kinds even on the level of body. This difficulty reappears in the "physics" of Part 2 of Spinoza's *Ethics*. Partly in response to

these difficulties Leibniz will seek to reintroduce Aristotelian "substantial forms" and final causes within the context of modern mathematical physics by way of the science of dynamics.[12]

This means, however, that the new science whose object is laws of nature is incapable of accounting for beings as such and as particular kinds of beings—including especially human beings, the very beings who institute that science. Method and the science it makes possible are inapplicable to the human as such and to human ends or goals in particular. The human end must be sought elsewhere.

The goal. Classical philosophy in its Aristotelian form understood its goal as contemplation of first causes and principles of being, an activity regarded as choiceworthy for its own sake, and some version of the contemplative goal is shared by classical philosophy in its Socratic or Platonic form. Even the Epicurean and Lucretian versions of classical philosophy regard pleasure or quietude, not action, as the goal of philosophy. Bacon agrees that contemplation is most choiceworthy (A 113, 119) but transforms the meaning of contemplation. Contemplation in this new sense, directed toward the discovery of laws of nature, is inseparable from action; precisely this constitutes its superiority to ancient contemplation. More specifically, Baconian contemplation is inseparable from "conquering nature in action" and hence from the project of extending "the power and dominion of the human race itself over the universe" (A 19, 118). Hence it might appear that the new goal is simply power or mastery of nature for the sake of "the relief of man's estate" (A 267), or that theory is merely for the sake of practice. Yet, as Kennington shows, "the roads to human power and to human knowledge lie close together and are nearly the same"; they are not identical (A 122).[13]

The goal that motivates this scientific reform of philosophy obviously cannot itself arise from the project it inspires. Nor can that goal ever become the object of scientific knowledge—both because Baconian science is incapable of encompassing the specifically human and its ends and because its basis includes a critique of final causality in all its forms. Hence that goal, the "end aimed at," can only be derived from premethodical or prescientific experience of the human situation or reflection on that experience. We cannot know in the strict or scientific sense that what the new science pursues is good.

Bacon was aware that of the three characteristics that distinguish the new philosophy from the old, "the end aimed at" was the chief, but he failed to provide an account of it. Only Descartes—who is indebted to Bacon's work for its new understanding of the goal of philosophy[14]—attempts to give an account of the human good that directs the new scientific goal. In this regard the *Discourse* of 1637 takes precedence over the *Meditations on First Philosophy* of 1641. The *Meditations*, written in Latin and addressed to the Faculty of

Theology at the University of Paris, presents itself in part as a continuation of the classical metaphysical tradition; more precisely, it presents itself as both traditional (as speculative metaphysics of substance coupled with Christian apologetics) and as novel or modern (as quest for the indubitable foundations of the sciences).[15] The *Discourse*, written in the vernacular and addressed to the public (and especially to the *esprits forts* or "strong minds" among them), had been directed to "seeking truth in the sciences" and contained an explicit critique of the Scholastic tradition. Only the *Discourse* contains an account of both the beginning and the end of Cartesian philosophy. That end is most explicitly formulated in *Discourse* 6: we must reject the speculative philosophy of the Schools and make ourselves "as it were, masters and possessors of nature" (AT 6:62). The end of *Discourse* 6 may be traced back to the general goal stated in *Discourse* 1: to acquire a "clear and assured knowledge of all that is useful for life" (AT 6:4). As the sequel demonstrates, Descartes means clear and assured knowledge not of the goal or end itself but of the means to that end: the means—a nonteleological mathematical physics—may be indubitably certain; the end is not. The teaching of the *Discourse* may then be compressed into the formula "certainty for the sake of utility": not the substantial dualism of mind and body but that of certainty and utility, of means and ends, of mechanism and purpose is the fundamental Cartesian dualism.

The certainty and the utility of the *Discourse*, however, receive distinct and deeper groundings in the *Meditations*. The certainty of means of the *Discourse* is grounded in the *cogito* of *Meditations* 2, in an account of the knowing subject. There the "I think" opens up an indubitable region of "thought" or "ideas" epistemologically or methodologically, but not necessarily metaphysically, independent of body. It is this methodologically disembodied sense of mind, somewhat paradoxically, that makes possible the certain or scientific knowledge of body that constitutes mathematical physics. Science is grounded on a knower of which we know the methodological status only. The new end of utility, in turn, is grounded in the "teaching of nature" of *Meditations* 6. There the locus of purpose for Descartes becomes clear. Not mind alone or body alone or even their sum, but the composite of mind and body, a humanly experienced unity that is not scientifically knowable, is the locus of that "teaching of nature" whose instruments are pleasure and pain, the humanly knowable good and bad.

Once again, as for Bacon, knowledge of the good or the end is premethodical and pretheoretical, and the experiential account of the good is never replaced by a scientific or nonteleological account.[16] The teaching of *Meditations* 6 exemplifies "the typically modern paradox. . . .: what is good is not known to be true, and what is true is not known to be good."[17] So Bacon and Descartes, who seem insufficiently cognizant of the Socratic or Platonic alternative to

Aristotle, recapitulate in part the Socratic turn away from natural philosophy to the "second sailing" described in *Phaedo* 99D. "Without self-consciousness of its necessity," Descartes "was compelled to repeat in part the Socratic discovery of the *terra incognita*, the human experience of the human."[18]

Frank Hunt

NOTES

1. See Martin Heidegger, *Being and Time*, trans. John Macquarrie and Edward Robinson (London: SCM Press, 1962); Leo Strauss, "What Is Political Philosophy?" and the opening paragraphs of "On the Basis of Hobbes's Political Philosophy," in *What Is Political Philosophy?* (New York: The Free Press, 1959); Hans Jonas, *The Phenomenon of Life* (New York: Harper and Row, 1966). See Karl Löwith, *From Hegel to Nietzsche* (New York: Holt, Rinehart and Winston, 1964), for the nineteenth-century background of the crisis.

2. See Kennington's critical reading of Hans Blumenberg, "Blumenberg and the Legitimacy of the Modern Age," in *The Ambiguous Legacy of the Enlightenment*, ed. William A. Rusher with Ken Masugi (Lanham, MD: University Press of America and Claremont: The Claremont Institute, 1995), 22–37, and note 7 below.

3. Parenthetical references in the text to works of Bacon and Descartes are to *The New Organon and Related Writings*, ed. Fulton H. Anderson (Indianapolis, IN: Bobbs-Merrill, 1960) (A), sometimes modified in light of the original in the Spedding, Ellis, and Heath edition of Bacon, and to the Adam and Tannery edition of Descartes (AT). The present references are to A 4 and AT 6:1.

4. Descartes uses the terms *methodus* and *méthode*, Bacon the terms *via* and *ratio*.

5. See "Bacon's Critique of Ancient Philosophy in *New Organon* 1" and "Descartes's *Discourse on Method*." "It is the modern rejection of mirroring [nature] that makes the turn to foundations necessary" ("Bacon's Critique," note 6).

6. Immanuel Kant, *Critique of Pure Reason*, trans. Norman Kemp Smith (New York: St. Martin's Press, 1965), B xii–xiii. See Kennington, "Bacon's Reform of Nature."

7. For the expression "human self-assertion," see Hans Blumenberg, *The Legitimacy of the Modern Age*, trans. Robert M. Wallace (Cambridge, MA: MIT Press, 1983), part 2.

8. For Bacon, the beings of our pretheoretical experience are merely "troops" or collections of simple natures, a notion that will resurface in Locke's empiricism: "In Bacon, a thing is a collection of simple natures; in Locke, the complex idea of a thing is formed from a collection of simple ideas" ("Nature and Natural Right in Locke").

9. See "Bacon's Ontology" and its appendix, "Laws of Nature."

10. See "The Finitude of Descartes's Evil Genius."

11. See Edmund Husserl, *The Crisis of European Sciences and Transcendental Phenomenology*, trans. David Carr (Evanston, IL: Northwestern University Press,

1970), sections 1–15. The project of Husserlian phenomenology in its final phase, in the *Crisis* and related writings, is a reversal of the early modern flight from the *Lebenswelt*.

12. See "Analytic and Synthetic Methods in Spinoza's *Ethics*" and "On the Intention of Leibniz."

13. See "Bacon's Reform of Nature" and "Bacon's Critique of Ancient Philosophy in *New Organon* 1."

14. See "Descartes and Mastery of Nature."

15. See "The 'Teaching of Nature' in Descartes's Soul Doctrine."

16. Nor is this situation evidently remedied in the late *Passions of the Soul* (1649), where Descartes says that he speaks "as a physicist" (AT 11:326).

17. "The 'Teaching of Nature' in Descartes's Soul Doctrine."

18. "The 'Teaching of Nature' in Descartes's Soul Doctrine."

Chapter One

Bacon's Reform of Nature

Of all Bacon's successors, it was perhaps Kant who had the greatest insight into his methodology. Kant tells us in the first *Critique* that Bacon "partly initiated . . . partly inspired" the intellectual revolution in natural science of the seventeenth century. The core of that revolution was the change in standpoint toward nature brought about by human reason. "[Reason] must not allow itself to be kept . . . in nature's leading strings," Kant observes, but must devise experiments to "[constrain] nature to give answer to questions of reason's own determining."[1] And despite the "Copernican" turn he made commonplace, he indicates that it was Bacon who had been the first to see that nature might be so constrained, which in Bacon's terms means "forced out of her natural state." Bacon had seen the decisive point that inquiry is not primarily a receptive activity but an active compelling of nature to yield up her secrets.[2] But this leads to an aspect of Bacon's argument not quite so salient in Kant's presenting of it. In Bacon's context the compulsion of nature by experiment is inseparable from the goal of philosophy as mastery of nature. Prior to Bacon, the great tradition had regarded the nature of philosophy as predominantly contemplative or speculative in its purpose. The consequence of his reform is visible in Descartes's statement that in place of "the speculative philosophy" of the Scholastics, he would seek "a practical philosophy" by which "we" could make ourselves "like masters and owners of nature." No one doubts that Bacon is the progenitor of Cartesian mastery of nature.[3]

From the outset of the present century, and with increasing urgency since, it has proven necessary to ask: is the goal of modern rationalism, and especially of its scientific component, truly Baconian? Is mastery of nature the purpose governing reason in modernity? The question itself is incited by the experience we all have of a liberating but also alienating technology; it seems

to have been answered in the affirmative by the overwhelming fact of that technology. Premodern philosophy and science was obviously theoretical in character; it produced no technology of any significance. Contrarily, the seventeenth-century exponents of modern rationalism—Bacon, Descartes, Hobbes, and Locke—are unanimous in announcing that it intends the mastery of nature, and a consequent "infinity of artifices," to use Descartes's phrase, that will alleviate the human condition. Surely reason in its post-Cartesian formulation could be said to have delivered on its promise.

Nevertheless, our question about the goal of modern rationalism divides competent observers into two camps. The first camp defends the theoretical purity of modern science, and is composed mainly of the scientists themselves and their public defenders. "Science, in its pure form, is not concerned with where discoveries may lead; its disciples are interested only in discovering the truth."[4] The scientist qua scientist is not concerned with the applied science produced by engineers, and called "technology" by all. If we ask this pure scientist why there appears to be an inherent connection between scientific theory and technological success, he replies that his science delivers results simply because it is true. If, inspired by Kant's Baconian insight, we ask the scientist if it is always the scientist, and not on occasion the "interested public," say, who selects the questions put to nature, or if we point out that certain questions of apparent interest have not been posed by science, sometimes for centuries at a stretch, he replies that we have raised issues of a historical character, issues that science is not equipped to answer.

The other camp to have considered modern rationalism does not hesitate to affirm that its goals are Baconian in character; but this camp also has its difficulties. It consists mainly of philosophers of the last one hundred years or so, for example, Nietzsche, Scheler, Heidegger, Strauss, and Löwith, among others. While Nietzsche was not the first to have identified modern rationalism as dedicated to the mastery of nature, his account is the most influential, for he gives ample sanction to those who want to pursue the most power. "Science—the transformation of nature into concepts for the purpose of mastering nature—belongs under the rubric 'means'." Nietzsche believes that extremism is necessary and ingredient to virtue; Strauss holds that moderation never compromises what is excellent. Strauss summarizes the extent of the transformation wrought in modern life by the Baconian goal: "The purpose of science is reinterpreted: *propter potentiam*, for the relief of man's estate, for the conquest of nature, for the maximum control, the systematic control of natural conditions of human life. Conquest of nature implies that nature is the enemy, a chaos to be reduced to order; everything good is due to man's labor rather than to nature's gift." Heidegger stresses the ontological change in the status of man among all the beings; man now takes on "the standard-giving role . . . within beings as a

whole." Scheler is especially concerned with showing that the traditional distinction between theory and practice does not apply to modern science, for what it calls theory is already conditioned by demands that are ultimately practical.[5]

Have these philosophers proved their case against modern rationalism? Of course we have learned much of the first importance from them, and much that bears closely on the meaning of the concept of mastery of nature. We recall with gratitude the remarkable studies of Strauss, especially of Hobbes, and the illuminating studies of Heidegger as found in his Nietzsche volumes. Yet there are at least three significant problems still in need of attention. The first concerns the origin of the concept of the mastery of nature. If we are to understand this origin we must first consider the Greek discovery of nature; only then could we begin to assess the subsequent transformations nature underwent in the centuries prior to Francis Bacon; we would then be in position to understand how it was that science abandoned the traditional discussion of nature as the principle of generation. The same problem might be put in slightly different terms. Why was it that out of the two traditions guiding the West, biblical religion and classical Greek philosophy, there arose the one new goal of universal mastery? A second problem turns on the question as to whether or not the mastery of nature goal actually determines or conditions the very principles of the new concepts of nature. For example, does it determine or condition the notion of the "laws of nature" so characteristic of modern nature? Unless such a link has been shown, it is still open to the defenders of the theoretical purity of modern science to say that the Baconian element is just the application of disinterested theory.

The third problem concerns the proper target of inquiries. To which philosophers should our attention be directed? Here, of course, I declare my interest. My theme will be that the problems just raised are most properly put to Bacon, because it was he who addressed them not only first but more fully than anyone after.

The plan of my essay is as follows. Its first part treats of the question of the end, and of its roots in the medieval and ancient traditions. Then in part two it considers the manner in which the mastery of nature goal conditions or determines the principles of Bacon's reform of nature. Finally, in part three, I propose to indicate how the mastery of nature includes for Bacon the construction of institutions by which it becomes a nascent philosophy of history.

THE QUESTION OF THE END

According to Bacon, the question of the end of knowledge is the primary question of philosophy, the question with which it begins, and the question

with which it remains. The end of knowledge has hitherto been understood in two fundamentally different ways: the way of the Bible, and the way of Greek philosophy. The way of the Bible is considered in the first published statement of his philosophy, the *Advancement of Learning* of 1605. The way of Greek philosophy is presented in the book of his philosophic maturity, the *New Organon* of 1620. In other writings, published and unpublished, he invariably distinguished these two ways, biblical and Greek. We thus have from Bacon a considerable reflection on the two great sources of Western civilization on the great question of the end of knowledge, a question that, we should expect, finds them most at odds. In fact, Bacon implies that the answer to the question of knowledge offered in the Bible and in Greek philosophy is basically the same. All the more important it is, then, that we establish what this answer is, in order to make clear Bacon's modern alternative.

The inquiry proper into the question of the end begins with the assertion "there are two ways of contemplation." This simple statement occurs in almost all of Bacon's major published books. He does not mean by the "two ways" the way of the Bible and the way of Greek philosophy. He shows us what he means by making the demand that "contemplation and action . . . be more nearly and straitly conjoined and united together than they have been."[6] The first sort of contemplation is exemplified by Greek philosophy, which pursued knowledge for its own sake without regard for action or practical results. The second contemplation, conjoined with action for the "use and benefit of man," is Bacon's own philosophy. Yet the way of Socrates, who also sought the useful for man, is not Bacon's. Socrates called philosophy down from heaven to converse upon the earth, leaving aside natural philosophy, whereas Bacon insists that natural philosophy be pursued with the greatest diligence. Thus the difference between the two ways depends upon whether they pursue natural philosophy in order to benefit human beings. Bacon can call both his philosophy and the various schools of Greek philosophy "contemplation" because contemplation in its ordinary nonphilosophic sense means just to consider or inquire into something, regardless of the end.

Bacon does not immediately tell us why he rejects the first way, Greek contemplation. The *Advancement* does help us, however, to understand his answer to another question that has been widely disputed in the last half century. Was the Bible or Christianity the reason why he rejected Greek contemplative philosophy? Since the Bible in Genesis, chapter 1, verses 26 and 28, grants to Adam a certain mastery over the creatures, it has been argued by twentieth-century philosophers and scholars that it is the Bible that is the source of the goal of mastery of nature. But it is important to note that Bacon never mentions Genesis 1:26 and 1:28 in his discussion of God's creation, though he surely knew the verses.

Nevertheless it could be held that Christianity exerted a powerful influence upon the Baconian philosophy. For Bacon says repeatedly, in many books, that the pursuit of knowledge should be governed by charity. Charity he identifies as the first of all virtues. The one thing needful, the Pauline charity of First Corinthians, is necessary because of the Fall. It cures knowledge of the taint that human reason inherits from the rebellion in the Garden against God's prohibition of the knowledge of good and evil. For charity to govern knowledge means that knowledge must be sought for "the good of men and mankind."[7] Presumably the goal of charity is the same as that of Baconian contemplation, for the use and benefit of man. In late writings such as the *New Organon*, in which mastery of nature replaces or enlarges the goal of utility set forth in the *Advancement of Learning*, we still find the requirement that knowledge be pursued for the charitable end. One might easily conclude, then, that it is Christian charity that sanctions and enjoins the mastery of nature. One finds another argument made by Bacon that yields a similar result, namely, that the Holy Faith decides against the contemplative life as understood by Aristotle. For the Holy Faith exalts the common good over the private good, whereas the contemplative life surely exalts the private over the common.

But upon closer scrutiny it becomes clear that it is not Christian charity that persuades Bacon to endorse mastery of nature. Bacon's version of charity is much too worldly to be considered peculiarly biblical or Christian. As possible fruits of scientific mastery it features the extremes of pleasure, great engines of warfare, and indeed the pursuit of the immortality of the body in this life. Baconian charity is thoroughly humanistic, dropping the traditional insistence on the absolute primacy of the love of God, and showing little interest in the traditional care for the heavenly destiny of one's neighbor. Biblical charity had encouraged acts of benevolence toward our fellow humans, but not necessarily through the agency of mastery of nature, and certainly not as an end in itself. However, by knowingly altering the meaning of biblical charity, Bacon provides a biblical sanction for the humanitarian character of modern science, which it retains to the present day.

Since it was Bacon's reading of Genesis, and its story of the Fall, which appeared to lead him to his humanistic doctrine of charity, we must consider his biblical interpretation more closely. It is striking that he uses the same term "contemplation" to refer both to Greek philosophy and to the characters of the biblical narrative. Adam's activity in his original state prior to his fall from grace "could be no other than work of contemplation," because the end of that work was "for exercise and experiment, not for necessity." "For," Bacon continues, "there being then no reluctation of the creature, nor sweat of the brow, man's employment must of consequence have been matter of delight in the

experiment, and not matter of labour for the use."[8] Adam's acts were to observe the creatures, and to impose names on them. Adam is a contemplative in the Greek sense mentioned above, insofar as his search for knowledge is not compelled by necessity; and he is free of necessity because his needs are supplied by God's institution, through the fertility of the Garden in which he has been placed. Accordingly, the term contemplative is also applied to Abel, but not to Cain; it is not restricted to Adam's original situation. Abel represents the contemplative life "by reason of his leisure, rest in a place, and living in view of heaven."[9] Why Abel also represents the contemplative state becomes more evident through the contrast with Cain, who represents "the active state." Abel is a passive beholder of heaven, inactive despite his living after the Fall; Cain tills the ground, and thus anticipates the development of the arts, which led to the Tower of Babel, and God's punishment by means of the confusion of tongues, a punishment harmful to the advancement of learning, as Bacon observes. God's favor goes to Abel, whose contemplative life is like that of Greek philosophy, unrelated to the action required to remedy our human condition. It is the active life, by which man improves his condition through the arts, that is the root of mastery of nature; and in this life man relies exclusively on himself. Bacon is ostensibly talking about characters in the Genesis narrative. But his anachronistic use of "contemplative" shows that he is imputing trust in the divine order to Greek philosophy. Why Bacon makes no mention of Genesis 1 verses 26 and 28 now becomes intelligible. The command given there to dominate the creatures is not a command to rely exclusively on oneself, for prior to the Fall man remains reliant on God. Mastery of nature, then, is not for Bacon obedience to divine command, but man's self-reliant response to his human condition of neediness after the Fall. It is a response of entirely human origin.

The essence of contemplation in its original form is trust in the benevolence of the divine order. Adam before the Fall, Abel after the Fall, and Greek contemplative philosophy as Bacon understands it all exhibit this trust. Bacon provides an analysis of Greek contemplative philosophy in his doctrine of the Idols in the *New Organon*. Except for one mention of his contemporary, Gilbert, every philosopher referred to there is Greek. But the analysis in the *New Organon* does not confine itself to what it considers a Greek error. For the first of the Idols, the Idols of the Tribe, concern human nature generally. And while each of the four kinds of Idol is of philosophical moment, only the fourth, the Idols of the Theater, especially target Greek philosophy. With both the first and the last of the Idols, Bacon takes up the question of final causality. Putting together the relevant aphorisms, we see that for Bacon a philosopher's avowal of final causality is primary evidence that the philosopher avows divine purposiveness governing the whole.

Bacon's analysis of this belief, in its psychological form, turns on three points. In his discussion of the Idols of the Tribe he first asserts that the human mind has a restless striving for what is ultimate, a first cause. Second, when this striving fails to attain its object, Bacon claims that it "falls back upon that which is more nigh at hand; namely, on final causes: which have relation clearly to the nature of man rather than to the nature of the universe." Third, final causality is said to be a defilement of philosophy, originating in the human desire for a provident order of the universe.[10] In the course of this exposition, Bacon makes two assertions upon which his judgment about final causality depends. He says that the general principles discovered by philosophy cannot in truth be referred to as a first cause; and he adds that they should henceforth be regarded as merely "positive" (*positiva*). He is fully aware that this account of final causality must be strengthened by another argument, to which I shall return.

Already within the doctrine of the Idols, however, he brings to the foregoing psychological analysis the support of another Idol. The internal or innate account of the Idols of the Tribe is supplemented by an external cause, one he calls an Idol of the Theater. A strictly psychological cause is not itself sufficient to account for the idea of a final cause, which typically takes the form of a religious dogma, and is embedded in a body of theological dogma. So Bacon imputes the corruption of philosophy, as regards final causes in, for example, Plato, to "superstition and an admixture of theology."[11] The argument being advanced is not limited historically to Greek antiquity. Bacon is aware that during the entire period we call "medieval" the fate of philosophy was deeply intertwined with that of theology. In the context of the Idols of the Theater he says that some "have with extreme levity indulged so far as to attempt to found a system of natural philosophy on the first chapter of Genesis, on the book of Job, and other parts of the sacred writings; seeking for the dead among the living. . . . [f]rom this unwholesome mixture of things human and divine there arises not only a fantastic philosophy, but also an heretical religion."[12] So much for the biblical inspiration of Baconian science.

Yet it is not religion but nature that Bacon identifies as the deepest source of belief in final causality. On the one side, it is the restless striving of human nature for ultimacy in the order of causes; and on the other, it is nature's inaccessible obscurity, which defeats that striving. Thus, it is nature in this dual sense that must be mastered; and the particular instrument of that mastery will be the experimental method, which corrects the naturally aberrant tendencies of the human mind, and which forces nature to answer man's questions.

Outside the doctrine of the Idols, Bacon returns to the restlessness of the human intellect, and gives it a methodological analysis. The explicit subject under scrutiny is "the form of inquiry and discovery that was in use among

the ancients."[13] The order of inquiry of ancient philosophy was to begin with some examples and received opinions, and ascend to the most general conclusions or first principles; these first principles it took as fixed, and then descended by way of intermediate positions. But this is no genuine ascent; an ascent would seek out and adhere to intermediate steps on the way to the most general conclusions. Ancient inquiry is a flight or a leap. The famous ascent of Greek philosophy, which begins with what is "first to us" and culminates in what is "first in itself," is either a self-deception, as Bacon understands it, or a deception of others. We recall that Bacon has already told us in the section on the Idols that an ascent to a truly first cause is not possible, and that the most general truths should be regarded as merely "positive." What would be required would be a "just scale of ascent" "by successive steps not interrupted or broken": Bacon's point is that we do not find such a just scale of ascent through all the intermediate steps when Plato or Aristotle claim to ascend to a first principle. Putting the two Baconian arguments together, the psychological and the methodological, the reason why we do not find a just scale of ascent is that the human mind, confronted with the extreme subtlety of nature, is of such a nature that rather than secure knowledge that it is not deceiving itself, it prefers to leap to the comfort of accepting a final cause as the truth about the universe.

The importance of final causes, in the judgment of Bacon regarding the contemplative philosophy of Plato and Aristotle, is stated in a passage in the *De Augmentis* (1623), written near the end of his life:

> The natural philosophy of Democritus and others, who removed God and mind from the structure of things, and attributed the form thereof . . . to fate or fortune . . . without any intermixture of final causes, seems to me . . . to have been, as regards physical causes, much more solid and to have penetrated further into nature than that of Aristotle and Plato; for this single reason, that the former never wasted time on final causes, while the latter were ever inculcating them.[14]

NATURAL PHILOSOPHY

We now consider the formal presentation of "natural philosophy," which, in the *Advancement of Learning*, is the second of the three great partitions of philosophy, the other two having God and man as their theme. It has always been acknowledged that the key to Bacon's natural philosophy is what he calls "form" initially, in the *Advancement*, and later, in the *New Organon*, a "law of nature."[15]

Bacon breaks with the Aristotelian tradition with unmistakable explicitness. "The forms of substances are not to be inquired." The Aristotelian substance was a compound of form and matter, in which the form was the end, that final cause for the sake of which the development of the substance to its maturity occurred. In place of compound substances, Bacon advocates the investigation of the forms of simples. This marks the introduction of the Baconian form. Initially, this form is the form of a simple property, which is called a "simple nature" since it is the element out of which a whole is to be constituted. To conceive a whole out of simples understood as elements is an enterprise often found in ancient philosophy. What is new with Bacon is that the simple is conceived as a property, not as some subsisting entity; and a collection of properties is that from which a whole is said to be constituted. Bacon then takes the radical step of positing a "form" of each property, and this form is the underlying movement of subsensible bodies that accounts for the property. The term property is replaced by "simple nature," and Bacon conceives that there is an "alphabet" of simple natures that includes all the constituent elements of all the beings there are.

From the start Bacon thus challenged Aristotle on the fundamental issue: how is a natural being to be understood? The difference is from the start a difference of standpoint: Bacon seeks to understand a being in terms of how it initially came to be, in order that its production might be reproduced by man. The question of genesis is coupled with another: how to rejuvenate a living being as it becomes aged and undergoes senescence. He justifies the turn to simples as a taking notice of "what are the Forms, the disclosures whereof are fruitful and important to the state of man."[16]

Bacon experienced great difficulty conceiving a whole that could be thus constituted out of simples. Three aspects had to be considered. There was, first, the simple nature; second, the form of the simple nature; and third, the matter or particulate material from which the form was inseparable. Among these three it was the form that was the intermediate between the simple nature and the underlying material particles. As regards the simple natures, clearly there was needed some bond that would make them into a unified whole, or, more precisely, what was needed was a coupling form that would unify the forms of the simple natures. This problem remained without a solution. It reminds us of Leibniz's need for a bond or chain, a *vinculum substantiale*, to bind into one whole the simple monads. The simple natures doctrine was not fruitful as a way of constituting beings. But Bacon realized that certain of the fundamental natures, such as heat, and light, and gravity, were constituent forces in the natural world, and as such, worthy of investigation apart from any role they might have in constituting wholes. Moreover, "heat" in this sense of a force indifferent to the kind of being in which it was to be

found was clearly something whose understanding could be of great importance in industrial processes, and perhaps also in explaining the heat of the human body. By the time of the *New Organon*, the forms of the simples as elements of compounds had been replaced by the new theme, the forms, or laws as they were now called, of heat and such like constituent, primordial forces in nature.

The problem now became: to what kind of material were the laws related? From the fifteen years between the *Advancement* and the *New Organon* we have several fragments and one finished writing, the *Wisdom of the Ancients*, in which Bacon takes up the question of the nature of matter. Bacon was always a materialist, but never an atomist. Atomism was for him another example of the hubris of ancient Greek philosophy, which claimed to know what is ultimate in the universe. Like other Greeks, Democritus understood nature as that which is always and everywhere—in this case, the atoms. But the atoms, as eternal things, must not have the same properties as the compounds made out of them, which are perishable things. Still, the atoms had size and shape, as did the compounds made out of them; how then could the atoms be eternal or imperishable? So Baconian natural philosophy parts company with the natural philosophy of the Greeks: it wholly lacks first beings of any kind. Therefore "nature" in the sense common to all Greek philosophers, the first things of the whole, ends with Bacon. Stated differently, what begins with Bacon is "naturalism." In naturalism, the truth of propositions about natural things is established not by reference to that which is always and everywhere, but by means of method, by a methodical verification, at a particular time and place: naturalism is inevitably historical.

The *Wisdom of the Ancients* (1609) is in great part an inquiry into the cosmologies of the Greeks, in which the theories of the philosophers are compared adversely with those of the poets and their myths. Having rejected eternal matter Bacon was forced to ask, what can be known about the successive forms that matter takes? Just as Proteus in the myth keeps taking different forms as he is bound and constrained, so matter under the constraint of experiment takes a succession of forms, each of which belongs to a different phase of a changing universe. Bacon posits a finite number of phases; these begin to repeat themselves once they have been run through; there is an eternal return,[17] which we can know provided that experiment does in fact disclose to us in our phase of the universe all the other phases. Bacon knows, of course, that he is making a hyperbolic claim for the virtues of experiment: he hasn't a clue as to whether the sequence of phases is finite, and if finite, whether the number of phases is relatively small or extraordinarily large. Two things Bacon has discovered about the experimental: First, it discloses to us that which is not the case now, the counterfactual. And second, it shows us

that the world we live in has to be regarded as the "ordinary course of nature" only, and not some appearance of the true world. The ordinary course of nature becomes the cave from which the experimental method may or may not provide us an escape.

In the "ordinary course of nature," which is the prescientific world or *Lebenswelt* in which we all live, a given "nature" in Bacon's sense, for example, heat, manifests itself in a variety of ways. He postulates that the form underlying this nature is one and the same in all its manifestations. The heat of the sun and the heat of a living body and also the heat of a cup of coffee are, in their underlying form, one and the same everywhere in the universe. We can then gather their instances, and examine their common properties, provided, of course, that we make the assumption of a limited variety in the universe. A Baconian law is a pattern of the movement of the underlying corpuscles that is uniquely correlatable with an observable simple nature. It is not necessary to know one ultimate kind of matter, but only to attend to what the properties of matter are in this or that context. But the Baconian law is also related to other laws, and its peculiarities should enable us to rank it as subordinate or superordinate to those others, thus allowing us to place it within a system of laws.

Bacon uses the image of a pyramid to represent his natural philosophy as a whole. He did not give us a nature as a whole, that is, a cosmology to which he committed himself, although he did write expositions of a speculative cosmology.[18] The pyramid of natural philosophy has its unity from the connection Bacon has made between the different sciences represented. The basis of the pyramid is natural history, which is an experimental classification of the phenomena in the ordinary course of nature. The next higher level of the pyramid is called "physics," and is concerned with the ordinary beings in the ordinary course of nature, and with their efficient and material causes. The highest level of the pyramid is called "metaphysics," which is the science of the laws of nature, which are "eternal and immutable." Thus physics is a science of perishable beings, and metaphysics a science of eternal laws. As for the vertical point of the pyramid, it is the "summary law of nature," also called "the work which God worketh from the beginning to the end." The entire pyramid is meant to represent the ascent from the beings to the laws and their structure up to the supreme or most general law of nature, or as he once describes it, the supreme law of motion in the universe. The unit of the ascent, as it were, is the subordinate/superordinate relationship of one law to a still more general law. Bacon even stipulates that to know a law requires that we know its relationship to another law, and to know that other law, it is necessary to know a third law. The problem of continuous regress is present. And since the source of all laws, and especially the supreme law, is matter itself,

beyond the supreme law lies the unknowable matter that cannot be represented in the image.

If we scrutinize the pyramid, we notice that physics and metaphysics are disjunctive of each other. The one is a science of beings of the ordinary course of nature, the other a science of the laws of the primordial simples like heat and gravity. Man must exist as an object of physics, but metaphysics, the true science of nature, has nothing to say about man as such. Man and Baconian "nature" are disjunctive of each other; the domain of human activity, as outside of nature in the strict sense, becomes the historical, as we suggest in our final section. As mentioned earlier, natural philosophy is the first part of the triad of Baconian philosophy, which is divided with reference to God, nature, and man. Only the whole triad would disclose to us what the investigation of natural philosophy does not, and cannot, show, namely, that the end for the sake of which natural philosophy is pursued is actually no single end; or, rather, it is a general end, those human interests and passions of which there are no laws, and also no natural standards.

NATURE AND THE HISTORICAL PROCESS

Francis Bacon is a utopian. He is the author of one of the two perhaps most famous utopias, the *New Atlantis*. We might suppose that a utopian must necessarily think historically, must ponder the future of the race, or some part of it. But Plato's *Republic*, perhaps the greatest of utopias, is an utterly unhistorical regime. It is utterly unchanging, outside of time. By contrast, Bacon's utopia comes into being through the historical process and always remains within it. That is not true, however, of the *New Atlantis*, that utopia on an island, ruled by philosophers, which strongly reminds us of the Platonic republic, and which is, for the most part, outside of time. Yet the true utopia of Bacon is given its name in the title of his major book, the *New Organon, or, On the Interpretation of Nature and the Kingdom of Man*.[19] This book is the *New Organon* because it is the replacement for the old *Organon*, Aristotle's theory of science. The new organon is the "interpretation of nature" because nature is much more subtle than our ancestors had ever dreamt; and the method for the interpretation of such a nature will take many centuries to overcome that subtlety. But the achievement of that overcoming will deservedly be called the "kingdom of man" because man will live freely for the first time in his own world, a world of his own making, a kingdom within the "kingdom of nature," a phrase Bacon also uses.

Let us begin from the beginning. Bacon is the greatest disciple of the greatest antiutopian, Machiavelli. Bacon says, "We are much beholden to Machi-

avelli and others, that write what men do, and not what they ought to do." He also says, virtually borrowing from the same famous chapter 15 of Machiavelli's *Prince*, "As for the philosophers, they make imaginary laws for imaginary commonwealths; and their discourses are as the stars, which give little light because they are so high."[20] But Bacon believed that it was precisely his Machiavellian beginning that compelled him to become a utopian.

Machiavelli's political science sought to master *fortuna* or chance, but limited itself to human affairs. The *fortuna* or chance most harmful to man comes, however, not from other men but from nature. The shortness of life, its vulnerability to disease, the weakness and misery of old age, have to be laid at the door of nature, not other human beings. Therefore Bacon embarked on the project of eliminating chance from the nature of things, a project that Machiavelli might well have regarded as mad. For one thing, Baconian technology means that a free republic depends no more on the military virtue of its citizens, but on military technology. Furthermore, Machiavelli's pursuit of wisdom was still the inquiry of one individual, of course with the comradeship of friends, whereas after Bacon the pursuit of wisdom becomes a function of a corporate endeavor, that of the body of scientific investigators.

At this point we glimpse the reason why Bacon's enterprise must be transformed into the attempt to master the historical process. The problem is two-sided. If mankind is ever to know the *summa lex*, the supreme law of the whole of nature, then we must reinterpret "tradition." Hitherto, although a philosopher was greater than even his best disciples, and so did not succeed in handing down his knowledge in all its fullness even to the next generation, that failure was not thought either to impugn the worth of a philosophical "school," or to be an impediment to the formation of new "schools" still somehow faithful to the original master. But once inquiry becomes a function of experiment, this handing down—*traditio* in its original sense—means stating precisely, in a manner fully intelligible to another, the hypothesis, procedure, and result of the experiment. The "experience" of the later generations means *experientia literata*, if I understand that Baconian phrase.[21] The scientific research report is certainly not literature in its older meaning, which seems to retain an abiding superiority to its readers, but it is the sort of writing that advances progress. Because it has done its job, we can read it and put it behind us, in this way carrying forward its intention with perfect fidelity.

On the other side, Bacon learned from Machiavelli that unarmed prophets, if armed with the right doctrines, can succeed. Bacon thus turned to Christian doctrine, and borrowed its teaching on charity, in order to consecrate the mastery of nature. Science became Christian humanitarianism, a garb it wears, although with some minor alterations, to the present day. Charity becomes the patriotism of the kingdom of man. The methodological guarantee of knowledge,

the repeatable experiment, the reliable control of tradition, and the humanitarianism of the society that fosters the project of science, conspire to guarantee, or virtually guarantee, the progress toward the kingdom of man.

NOTES

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1. Immanuel Kant, preface to Second Edition, *Critique of Pure Reason*, trans. Norman Kemp Smith (London: Macmillan & Co., 1956), 20.
2. *Works* 1:141; 4:29.
3. René Descartes, AT 6:61–62. See Descartes, *Discours de la méthode: texte et commentaire*, ed. E. Gilson (Paris: J. Vrin, 1962), 444. According to Gilson, "ce qui inspire la philosophie de Bacon n'inspire que la publication de la philosophie de Descartes." See the discussion of the alternative view in my "Descartes and Mastery of Nature," in *Organism, Medicine, and Metaphysics*, ed. S. Spicker (Dordrecht and Boston: D. Reidel, 1978), 201–23. [Reprinted herein. *Ed.*]
4. Daniel S. Greenberg, *The Politics of Pure Science* (New York: New American Library, 1967), 3.
5. Friedrich Nietzsche, *The Will to Power*, trans. W. Kaufmann and R. J. Hollingdale, ed. W. Kaufmann (New York: Vintage Books, 1967), 328; Leo Strauss, *Political Philosophy*, ed. H. Gilden (Indianapolis, IN: Bobbs-Merrill, 1975), 88; Martin Heidegger, *Nietzsche*, trans. F. Capuzzi, ed. D. Krell, 4 vols. (San Francisco: Harper and Row, 1982), 4:86; Max Scheler, "Erkenntnis und Arbeit," in *Die Wissensformen und die Gesellschaft*, 2nd ed. (Bern: Franke, 1960), 68; Karl Löwith, *Meaning in History* (Chicago: University of Chicago Press, 1949), 203.
6. *Works* 3:294.
7. *Works* 3:266.
8. *Works* 3:296.
9. *Works* 3:297.
10. *New Organon*, *Works* 1:167; 4:57.
11. *New Organon*, *Works* 1:175; 4:65. Pythagoras and Aristotle are also identified here as having made this error.
12. *New Organon*, *Works* 1:175–76; 4:66.
13. *New Organon*, *Works* 1:219; 4:111.
14. *De Augmentis Scientiarum*, *Works* 1:570–71; 4:363–64.
15. *Advancement of Learning*, *Works* 3:355.
16. *Advancement of Learning*, *Works* 3:355.

17. *Wisdom of the Ancients*, no. 13, "Proteus, sive Materia," *Works* 6:651–52, 725. See Howard B. White, *Antiquity Forgot: Essays on Shakespeare, Bacon, and Rembrandt* (The Hague: Martinus Nijhoff, 1978), 124, for a discussion of Proteus; and Jerry Weinberger, *Science, Faith, and Politics: Francis Bacon and the Utopian Roots of the Modern Age* (Ithaca, NY: Cornell University Press, 1985), 241. For the connection between experimental method and possibility, see Thomas S. Kuhn, "Mathematical versus Experimental Traditions in the Development of Physical Science," in *The Essential Tension: Selected Studies in Scientific Tradition and Change* (Chicago: University of Chicago Press, 1977).

18. G. Rees, "Francis Bacon's Semi-Paracelsian Cosmology," *Ambix* 22 (July 1975): 81–101. Among Rees's many Baconian publications, see especially the chapters on Bacon's speculative philosophy, in his edition (with Christopher Upton) *Francis Bacon's Natural Philosophy: A New Source* (London: British Society for the Advancement of Science, 1984).

19. *New Organon*, *Works* 1:157, 227; 4:47, 119.

20. *Advancement of Learning*, *Works* 3:430, 475.

21. "Now no course of invention can be satisfactory unless it be carried on in writing. But when this is brought into use, and experience has been taught to read and write, better things may be hoped"; *New Organon* 1.101–3 convey the meaning of Bacon's *experientia literata*. See *Works* 1:203–4; 4:96–97.

Chapter Two

Bacon's Critique of Ancient Philosophy in *New Organon* 1

Bacon makes a sustained critique of ancient philosophy in *New Organon*, Part 1, which has largely escaped thematic scrutiny. Initially this critique is said to be directed against three points of the "ordinary logic" (*logica vulgaris*), the tradition descended from Aristotle's *Organon*. Bacon asserts that his art, which is "a kind of logic" that he calls "interpretation of nature," differs from this traditional logic "in three points especially": "in the end aimed at; in the order of demonstration; and in the starting point of the inquiry."[1] The combined scope of these rubrics obviously extends beyond the *Organon*. Indeed, Bacon's discussion of each is not limited to Aristotle but applies generally to all his predecessors and even includes pretheoretical or "ordinary human reason."[2] Nevertheless, he never considers the medieval Scholastic philosophers and scarcely alludes to Telesius and Renaissance philosophers.[3] Bacon's critique is primarily concerned with "the form of inquiry and discovery that was in use among the ancients";[4] it is only of the ancients that he expressly asks after their form of inquiry. Only ancient philosophers are mentioned, apart from Gilbert, in what is perhaps the most penetrating part of the critique, the *Idola mentis*.

This critique is unique: it has no rival in length or comprehensiveness in the writings of the seventeenth-century philosophers, for example, Descartes, Hobbes, or Spinoza. Although Descartes is notorious for his failure to discuss the views of Aristotle and other predecessors, the ancients fare little better elsewhere in the founding writings of early modern philosophy. On the other hand, the effect of Bacon's critique is widely visible in the philosophic writings of his immediate successors. However, to see this effect, we must recognize that the critique of the ancients in Part 1 is the necessary preparation for the method itself in Part 2 of the *New Organon*. The interest in method in the sixteenth century is of course widespread in such figures as Ramus,

Bodin, and Acontius. Yet before Bacon no modern philosopher advocated the necessity for, or himself composed, a treatise on a universal method for seeking truth in the sciences. After the *New Organon* of 1620, treatises on method are produced, although often left incomplete or unpublished, by Descartes, Hobbes, Spinoza, Locke, and Leibniz, all well-known readers of Bacon.

Yet these treatises differ greatly from the *New Organon*. The real consequence of Bacon's advocacy of method lies in the supporting theses that emerge from his critique of the ancients: of their end of knowledge, order of demonstration, and starting point. These theses reappear not only in treatises on method but also in such metaphysical writings as Descartes's *Meditations*; indeed theses often regarded as the innovations of Descartes can be shown to receive their first statement in the *New Organon*. It is Bacon who first replaces the ancient order of knowing that ascends to first causes or principles by the demand for certain foundations at the outset of the order of knowing. Modern "foundationalism" and the related problem of "mirroring nature" have their origin in the Baconian critique of the ancients.[5] Bacon's critique of the ancient starting point of philosophy in the "anticipations of nature" is the repudiation of the notion of "mirroring nature," which he makes explicit.[6] This repudiation is then repeated by Descartes in the first chapter of *Le Monde*.[7] Theoretical reason, or *theoria*, receives its first detailed critique in the *New Organon*. Of the goal of philosophy as mastery of nature in Descartes's *Discourse on Method*, Bacon is the acknowledged source;[8] the ancient speculative or theoretical goal is nowhere asserted in the Cartesian writings. These preliminary indications suggest that a scrutiny of Bacon's critique of the ancients illuminates the modern origins.

Bacon's statement that there are "two ways of contemplation" indicates the premise underlying his critique of the ancients. This assertion, first published in the *Advancement of Learning*, appears in three other major Baconian texts, including the author's preface to the *New Organon*.[9] One of these ways of contemplation is the ancient one; the other is Bacon's new way. To contemplate for the ancients, as for Bacon, means to consider or behold that which is. The term is somewhat more informally used than the classical *theorein* but never bears a nontheoretical meaning, except perhaps in the rare phrase "contemplative prudence."[10] Thus Bacon's intent is to wage a contest with the ancients on their own chosen ground, the true way of considering that which is. Of course, we do not often think of Bacon as a contemplative philosopher, but that is because the term (and its near equivalent "speculative") has become dominated by the meaning stamped on it by the great tradition of Platonic and Aristotelian philosophy, ancient and medieval.

One extreme of Baconian interpretation takes him as the originator of a modern tradition that repudiates not only the contemplative goal of classical

philosophy but contemplation as such, the knowing of that which is. This is the road of interpretation that takes "mastery of nature" in Bacon, but also in Descartes and Hobbes, as the characteristic and definitive goal of the founding modern philosophers. Against these students of Bacon we appeal to the texts cited previously in which Bacon speaks of "two ways of contemplation"; to his proposal in the *Advancement* that "contemplation and action . . . be more nearly and straitly conjoined and united together than they have been,"[11] which implies two types of contemplation; and to his constant endeavor to show that his new approach provides a superior access to knowledge of that which is.

The opposite extreme of Baconian interpretation takes its bearings from Bacon's rare but undeniable assertion of the priority of contemplation to every practical goal. "Assuredly the very contemplation of things as they are, without superstition or imposture, error or confusion, is in itself more worthy than all the fruit of inventions" (*New Organon* 1.129). Confronted by this statement, scholars have assumed that Bacon means to refer here to the ancient contemplative goal of philosophy: they tacitly assume that there is but one primary meaning of contemplation in Bacon's writings.[12] This leads to the acute paradox that Bacon, having asserted in 1.129 that his goal is the conquest of the things of the universe, now suddenly in the same aphorism 1.129 reverts to the ancient primacy of contemplation in the Platonic-Aristotelian sense. They have failed to ask, of which of the two senses of contemplation is Bacon here speaking? It is impossible to think that Bacon has spent almost a hundred pages giving a critique of ancient contemplation only to return to it abruptly in the end.

Both extremes of interpretation accept a disjunction of knowledge and action, or contemplation and action, the one insisting that Bacon sacrificed theory to action, the other that he reverted to the ancient priority of theory to action. To deny this disjunction is a principal purpose of Bacon's critique of the ancients. The conjoining together of contemplation and action proves to be just the clue to Bacon's claim that his contemplative way is superior to that of the ancients.

THE LIMITS OF THE CRITIQUE: PRELIMINARY

Bacon gives a preliminary indication of the limits of his critique in the author's preface. The "two ways of contemplation" are indeed alternative ways of philosophy, but they do not simply exclude each other. His own philosophy, Bacon observes,[13] will not be much available for the practical business of life. It will therefore be legitimate to preserve and cultivate the old philosophy for

practical life. The ancient and the modern philosophies could thus divide the domain of philosophy, the modern, methodical philosophy being the theoretical philosophy of nature, the ancient philosophy being available for practical life. This passage is not without laborious irony, but we should not allow this irony to hide from us a serious point. Two considerations especially support its seriousness. Negatively, Bacon's critique of the ancients is limited to the order of demonstration and the starting point: it does not offer a critique of the end, for example, of the ancient view of the good. It excludes a critique directed at the practical philosophy of the ancients. Positively, the Baconian contemplative way promises a methodical natural philosophy, in which the law of nature is the central concept, but not a methodical philosophy of the human things. Thanks to this limit of the new philosophy, the contest over the interpretation of the human things will be waged on the basis of nonmethodical knowledge of both parties, the ancient and the modern contemplative ways.

THE ORDER OF DEMONSTRATION

We begin with the order of demonstration since it is the most comprehensive of the three points at issue in the critique. It proves to be identical with "the form of inquiry and discovery that was in use among the ancients," which Bacon considers in *New Organon* 1.125: this form "appears on the very face of their writings." The ancient order of demonstration was, in the first place, an ascent. "From a few examples and particulars (with the addition of common notions and perhaps of some portion of the received opinions which have been most popular) they flew at once to the most general conclusions, or first principles of the sciences." From these principles followed the descent. "Taking the truth of these as fixed and immovable, they proceeded by means of intermediate propositions to educe and prove from them the inferior conclusions."

Bacon's description of the twofold ancient order of inquiry has a recognizable accuracy up to a point. In a well-known passage in the *Nicomachean Ethics*, Aristotle remarks that Plato rightly asked whether the discussion was proceeding from or leading up to first principles.[14] He alludes to the distinction between the order of our knowing that begins with what is first to us and ascends to what is first simply, and the order of nature that begins with what is first simply and descends to particulars. We can suggest further that the necessity of beginning with what is "first to us" is the Socratic correction of his predecessors that is a guiding premise of classical Greek philosophy.

The gravamen of Bacon's charge is that the initial ascent in the order of knowledge is a "flight," or as he calls it at *New Organon* 1.104, "a leap." (The

use of these verbs anticipates the further assertion, to which we shall come, that the contemplative philosophers of antiquity were corrupted by religion.) To support this charge, it would seem that Bacon ought to point to important examples of "flight" and name the questionable first principles that resulted therefrom. This problem will receive some clarification when Bacon turns to the issue of final causes. In the present context, we must take Bacon at his word: the ancient form of inquiry and therefore the "flight" is evident in some manner on the face of the ancient writings.

So we must suggest our own possible examples. Does not Socrates ascend arbitrarily, hence by a flight, when, in *Republic* 6, he turns from the good, which is the good for man, to "the good" as the first principle of the superhuman whole?[15] Or consider an example from Aristotle's *Physics*. In Book 2 Aristotle contends for his assertion that nature is a principle or cause of motion and rest in those things to which it belongs primarily and not incidentally. His proof is a consideration of the difference between artificial and natural things. But the induction given is based on a limited number of examples; possibly difficult cases are unaddressed. Bacon's frequent objection to the ancient induction is that it generally decides "on too small a number of facts"; a "just scale of ascent" (*New Organon* 1.104) is lacking.

In the *Idola mentis* Bacon deepens his objection to the ancient order of demonstration by relating it to first causes, final causes, superstition, and religion. The character of the ascent is questioned in the first of the *Idola*, the *Idola tribus*. The Idols of the Tribe are the innate type, in which the human mind in forming its notions "mixes up its own nature with the nature of things."[16] The natural characteristic of the human mind is its restless quest for ultimate or first causes. At *New Organon* 1.48, we learn that of every principle the human understanding discovers it demands a further cause that is "prior in the order of nature." Bacon makes a distinction between the generality of principles and their causal character. What is reasonable is to seek principles of maximum generality; what is shallow is to be dissatisfied with general principles so long as they cannot be referred to a cause. The quest for principles of greater generality seeks the evidence from the widest possible induction; it is the quest for a "just scale of ascent." This is a first indication of what a Baconian methodical ascent means. The quest for a first cause, on the other hand, cannot be brought to a rest without the introduction of the final cause. The final cause is an anthropomorphism that "has relation clearly to the nature of man rather than to the nature of the universe," as is said in the same context. The natural desire of the human understanding is not for knowledge but for assurance or reassurance that all that is is for the sake of a purpose or for the good. In the sequel it is assimilated to religion or the desire for a benevolent and comprehensive divine power.

The step to religion is taken in the *Idola theatri*, which are the great dogmas enacted by the philosophers.[17] These are adventitious *Idola* that complete or correspond to the innate *Idola tribus*. In the plays of this theater, the artifacts of the philosophers are like those of the poets, which give us the world as one would wish it to be. Final causes and first causes show that "philosophy" has been corrupted by "superstition and an admixture of theology" (*New Organon* 1.65). In Pythagoras, the superstition is coarse; in Plato, "more dangerous and subtle." In natural philosophy, Plato's school was corrupted by natural theology.[18] The evidence of the corruption by superstition and theology in Pythagoras, Plato, and by implication Aristotle is the presence of first causes and final causes without the intermediate causes or axioms within the ascent that would render them plausible. Moreover, the mutual influence of philosophy and religion proves to be a mutual corruption in Bacon's account. Initially philosophy is corrupted by religion and erects final causes into dogmas, and this process was widespread among the pagan Greek philosophers. But the succession of such philosophic dogmas has ceased because "now for many ages," that is, in the Middle Ages, "men's minds have become busied with religion and theology." Hence the initial corruption of philosophy by religion culminates in the total absorption of philosophy and its teleological dogmas by the Christian religion in the medieval period. As regards final causality, "Aristotle is more to be blamed than Plato," asserts Bacon in the *De Augmentis*, "seeing that he left out the fountain of final causes, namely God, and substituted nature for God. . . . Aristotle, when he had made nature pregnant with final causes, laying it down that 'Nature does nothing in vain, and always effects her will when free from impediments' . . . had no further need of a God."[19]

Bacon's judgment of final causality is more traditional, that is, sympathetic, in the *Advancement of Learning* of 1605 than in the *New Organon* of fifteen years later. In the *Advancement*, Bacon assigns to "Metaphysic" the inquiry into "Formal and Final Causes," and to "Physic" that into "Material and Efficient Causes."[20] "The handling of final causes mixed with the rest in physical inquiries hath intercepted the severe and diligent inquiry of all real and physical causes."[21] Bacon's judgments of metaphysics and physics are revised in *New Organon* 2.9, as is often overlooked by those who take the *Advancement* as the canonical version of Bacon's classification of the sciences. Certainly the revision is not to be explained by some narrowing of subject matter under consideration in the *New Organon*, for the domain considered in the latter is quite explicitly general: "a just division of philosophy and the sciences" (*New Organon* 2.9). Metaphysics here becomes "the investigation of forms [that is, laws of nature] which are (in the eye of reason at least, and in their essential law) eternal and immutable." The laws that are the object of

metaphysics are known by experimental method and hence outside the "ordinary course of nature." By contrast "physics," in Bacon's unusual nomenclature, is not the inquiry into the laws of nature. It is "the investigation of the efficient cause, and of matter, and of the latent process, and the latent configuration (all of which have reference to the common and ordinary course of nature)."[22] The result is a sharp departure from the more traditional *Advancement*: final causes have been excluded from both main branches of "philosophy and the sciences," namely, from both metaphysics and physics. Bacon reserves a place for final causes only in human things, and not in the constitution of human beings but only in their actions (*in hominibus actionibus*) (*New Organon* 2.2).

To understand Bacon's opposition to teleology, we must first acknowledge that the rejection of final causes was at home in the naturalism and materialism of Telesius and other Renaissance thinkers familiar to Bacon (*New Organon* 1.116). Bacon is interested in the teleological issue primarily in the comprehensive causality of the heavens. His critique is directed above all against Aristotle and is most forcefully expressed in *De Augmentis*, as we have seen.

As regards the manner in which nature as a whole is to be understood, the choice of the teleological versus the mechanical view is decided by the manner in which the problems of the heavens and their motion is solved, as Aristotle himself stresses in the *Physics*.[23] The solution that Aristotle advances depends upon a physical astronomy that was nonhypothetical and teleological. By contrast, the astronomy of Ptolemy was content with mathematical constructions that "saved the appearances," as is well known, and became the accepted tradition. Thus the physical astronomy on which Aristotle relied had been superseded by the dominant tradition for many centuries by the time of Bacon. Moreover, insofar as the theory of Copernicus remains a hypothetical account, it lends no support to a teleological account, and insofar as it is regarded as nonhypothetical, it nonetheless is not a causal account and so is again unavailable for teleological purposes. Accordingly the Aristotelian teleology lacked the required supporting nonhypothetical and causal astronomy during the centuries from Ptolemy to Bacon. From these background remarks, we can understand Bacon's repeated objection to the astronomical tradition that it is merely hypothetical, a matter of fictitious circles, and the like. On the phenomena of the heavens many hypotheses may be constructed.[24] Copernicus and his modern followers were not of decisive importance for Bacon, as a genuinely nonhypothetical account would have to be a causal account ("the highest part of physics"), and such an account was not claimed at Bacon's time.[25]

To conclude this part of our discussion, Bacon's reform of the *ordo demonstrandi* means that genuine knowledge is obtainable at any point of the ascent

without being grounded in a first cause. Therefore, the object of Bacon's new contemplation will be any principle known at any point in the ascent.

THE STARTING POINT

Bacon's critique of the ancient starting point is made through a comparison with the correct starting point. He calls the ancient one "anticipations of nature" and the Baconian one "the interpretation of nature" (*New Organon* 1.26ff.). This opposition remains obscure until the concept of the "law of nature" is introduced. In fact, the preliminary case for the interpretation of nature is the best Baconian introduction to his concept of a law of nature.

The true *ordo demonstrandi* required a "just scale of ascent" or "progress in stages of certainty," as we have seen. It therefore supposed a certitude in the starting point, but this issue has not yet been addressed. "Anticipations of nature" refer to ordinary, "immediate and proper," and spontaneous deliverances of the senses, in contradistinction to experimentally controlled deliverances of the senses. The assertion "It is a great error to assert that the sense is the measure of things" is a criticism directed against the anticipations of nature. To correct the anticipations Bacon provides "helps," namely, instruments (including the telescope), but what is more important, the experiment. "The subtlety of experiments is far greater than that of the sense itself, even when assisted by exquisite instruments."[26] Between the senses and the observed thing is the mediation of the experiment. For "the office of the sense shall be only to judge of the experiment, and the experiment itself shall judge of the thing."[27]

The account thus far leaves the impression that "interpretation," that is, utilization of experiment, gives a "more subtle" account of the same thing that "anticipation" or ordinary sensing renders crudely or in some "blurred" fashion. This is misleading: a different object is being sought after in interpretation from that of ordinary sensing, although both involve the senses, in the different ways mentioned.

To approach this difficult issue, we start with an assertion that Bacon often makes: "No one successfully investigates the nature of a thing in the thing itself" (*New Organon* 1.70; cf. 1.80). Rather than adhere to "the thing itself," the inquiry must be enlarged so as to become more general. In the Aristotelian approach, which Bacon is opposing, the thing in question would be a substance or entity of a determinate form or kind. Such a being would be apprehended by what Bacon calls an "anticipation," as distinct from an experimental interpretation. In an anticipation, we encounter what Bacon calls "nature working freely" in the "ordinary course of nature,"[28] in contrast to na-

ture under the "vexations of art" (*New Organon* 1.98) or experiment. These phrases have an informal ring but are in fact technical terms that articulate the pretheoretical world of common human experience. In this life-world, to use contemporary language, it is the natural species that is the articulating principle. "When man contemplates nature working freely, he meets with different species of things, of plants, of animals, minerals."[29] The inquiry that Bacon is rejecting is, then, that according to which the thing has a form of a specific kind. The "first state [of nature]" in which nature "is free and develops herself in her own ordinary course" "refers to the species of things," asserts Bacon in the appendix on natural history that accompanied the *New Organon*.[30]

The "thing itself" is the object of sense as referred by our anticipation to its species membership. It is this species reference that Bacon is rejecting as the proper locus of inquiry. He endeavors to shake our trust that to be is to be a being of a certain kind by referring to certain phenomena that are distorted by this species reference, for certain phenomena of great significance, such as heat, light, and the pull of gravity, "cut across" the natural species. To refer them to their incidence in a natural species is just to abstract from their natural coincidence in many species simultaneously. "If a man be acquainted with the cause of any nature (as whiteness or heat) in certain subjects only, his knowledge is imperfect" (*New Organon* 2.3). For if we study heat in one species of phenomena such as fire, by itself, and in another species of phenomena such as celestial bodies, by itself, we shall not understand heat. It is because of this subject- or species-related inquiry that the error has arisen that "the heat of the sun and of fire are quite different in kind."[31] "We are told (and it seems to be a division quite received and authorized) that there are three kinds [*genera*] of heat: the heat of heavenly bodies, the heat of animals, and the heat of fire" (*New Organon* 2.35). It is this received opinion that there are different heats that are "in their specific nature . . . distinct and heterogeneous" (*New Organon* 2.35) that Bacon is rejecting.

Bacon regards the heterogeneity of kinds as theoretically arbitrary and unproven. But he also regards it as an obstruction to operations useful for mankind. If the heat of the sun and fire were regarded as one and the same, then man can accomplish by means of fire or "artificially" what the sun accomplishes "naturally." Men would attempt to imitate and even surpass the work of the sun by the heat of fire (*New Organon* 2.35; 1.75). But this should not lead us to assert that Bacon's concept of the workings of nature is governed exclusively by the humanitarian desire for useful operations. It is here both together, "contemplation joined together with action," that fortify each other in establishing a conclusion, the unity of the phenomena experienced in various contexts as heat, a unity that has since become an axiom in scientific work.

The phenomenally different manifestations of heat may be shown to belong to a common nature (what Bacon calls a "simple nature") if they can be referred to a single cause. This is the task that Bacon proposes to solve by the tables of his philosophic method. The cause being sought for he calls a "form," using the traditional term "because it has grown into use and become familiar," that is, for essentially rhetorical reasons (*New Organon* 2.2). It is for the sake of precision that he rejects the traditional term and its species-relatedness and prefers the term "law." Yet he continues to speak of form, sometimes speaks of "form or law" (*New Organon* 2.17), and sometimes says that if there are forms they must be understood as "laws of action" (*New Organon* 1.51). Bacon's apparently first published instance of the notion of law is his reference to a "summary law of nature" in the *Advancement*,[32] which he calls the *magna forma* in *New Organon* 2.26, 52.

Bacon is a materialist. "In nature nothing truly exists besides individual bodies [*corpora individua*] performing pure individual acts according to law [*lege*]. Yet in the sciences, this very law, and its inquiry and discovery and explanation, is the foundation of knowledge as well as of operation" (*New Organon* 2.2). Bacon is a materialist but not a metaphysical materialist: he denies that there are atoms (*New Organon* 2.8). He therefore does not start from the ultimate, undivided parts of matter, either to derive compounds or to derive the first cause of motion. His science is neutral to the actual dividedness of the bodies of experience; he is a principal source of modern corpuscularism. A Baconian form is not a form of a being or of a kind of being. It is a regular pattern of the motions of corpuscles. Bacon is unable to establish the necessity of this pattern of motions; he offers us an articulated account of the law of nature without any proof of its assumed necessary causal action. An example of a law of nature is the law of heat, to which he devotes his exemplary account of the use of method to establish a law. The law of heat is a regular pattern of the corpuscles acting upon each other, which motion is progressively differentiated from other kinds of motion.[33]

Bacon makes an extraordinary attempt to establish a new ontology of beings, or at least bodies, on the basis of his concept of law. Heat is a quality, of which there is an underlying law. But what of other qualities? Do they not also each have an underlying law? Bacon answers in the affirmative and therefore proposes a momentous reform of the notion of a thing, especially at *New Organon* 2.5. He endeavors to restrict the multitude of qualities to a finite list of "simple natures." He seeks to establish a complete inventory or catalog or alphabet of all the simple natures there are. But the attempt to restrict them is not successful in reducing the horde of qualities into classes or grades or priorities. The one limitation appears to be that every simple nature is a quality of a body. A body is defined as "a troop or collection of simple

natures" (*New Organon* 2.5). The glaring difficulty here, as Bacon acknowledges, is that a body must be a point of coincidence of the laws that underlie a body's qualities. Since each law is itself a pattern of motions of corpuscles, they must "severally crush, depress, break, and enthrall one another, and thus individual forms are obscured" (*New Organon* 2.24). The difficulties that beset this new ontology go far to explain why Bacon's method in Part 2 fails even to suggest how the method could lead to a science of human beings.

With the concept of the law of nature to aid us, we may now clarify the critique of the ancient *ordo demonstrandi*. As indicated previously, Bacon contended that the ancient ascent was a flight or leap because no intermediate steps were given to justify the assertion of first or final causes. So the ancient contemplation fails, but what new reason is there that Bacon's modern contemplative way must also fail to reach a first or final cause? Bacon's concept of law appears to demand that knowledge of law be part of a hierarchy or ladder of laws whose immediately higher rung, that is, more general law, is also known. However this may be—it raises the question of a regress that cannot be carried out—Bacon surely conceives of a hierarchy of laws that culminates in the notion of a comprehensive law, a *summa lex* or *magna forma*. Yet the question arises, Why should the *summa lex/magna forma* preclude first or final causes?

Bacon supplies a biblical origin for the *summa lex* in the *Advancement*. Solomon in Ecclesiastes 3:11 "doth insinuate that the supreme or summary law of nature, which he calleth *the work which God worketh from the beginning to the end*, is not possible to be found out by man."[34] Considered attentively, the passage that Bacon quotes does not say anything about "law," "nature," or "law of nature." And whereas the Bible or Solomon says that this "work" cannot be found by man, Bacon suggests the contrary possibility. The impediments to attaining to knowledge of the *summa lex* are not necessarily insuperable, a conclusion Bacon also draws in the *New Organon* (2.26). If then we suppose the *summa lex* is accessible, still precisely as law in Bacon's sense it does not make possible a first or final cause. To assert, as is sometimes done, that any notion of a law must require a lawgiver overlooks the condition that the law show some evidence of its being made by a lawgiver, that is, that it show signs of his purposes. But the Baconian law, or systematic hierarchy of laws, is purposeless. This enables us to understand in a clearer way a passage about ascent in the first Idol that we have already considered. "The most general principles in nature ought to be held merely positive, as they are discovered, and cannot with truth be referred to a cause" (*New Organon* 1.48). The Baconian ascent, warranted by the procedures of experimental method at each step, permits the inclusion of a principle within more general ones but supplies no basis for a reference to a cause. We are justified, then, in speaking of a *lex positiva*, a phrase Bacon actually uses in the

fragment *De Principiis atque Originibus* (ca. 1616). Bacon's new contemplative way claims to be genuine knowledge but not to know first beings or first principles.

As indicated, Bacon offers no specific critique of the end, as distinct from the *ordo demonstrandi* and the starting point of ancient philosophy. Why then did he reject the ancient end of pure contemplation? To address this question, we must use the result of the foregoing discussion that showed that Bacon understood the ancient end as inseparable from the entire "way of contemplation" of the ancients in its tripartite character. By showing that the defects of the ancient *ordo demonstrandi* and starting point were traceable to their purely contemplative end, Bacon has already given his critique of that end; no additional critique specific to that end is required.

But his critique has in fact a double character: he not only traces the ancient defects to their source but also indicates that the "conjoining of contemplation with action" is the remedy for those defects. The ancient ascent is faulty because it is a "leap" in quest of final causality and not a quest for pure knowledge; its remedy is the experimental procedure that guarantees a just scale of ascent. But experimentalism must be directed upon its proper object, the law of nature, before we see how knowledge and action are combined. The law of nature states the underlying cause of a "simple nature" that is encountered in experience, for example, heat. But the experimental process of verifying such a law proves to be the same as the process of the production of heat.

Bacon had therefore already rejected the ancient end by rejecting the ancient *ordo demonstrandi* and starting point. But his correction of the ancient way, which is the conjoining of contemplation with action, as just sketched, leaves Bacon with a great problem, precisely in the realm of practice. The "action" with which theory is combined is limited to the production that is feasible through knowledge of the laws of nature. It excludes knowledge of the ends or goods of human life that would guide the uses of that production. The notable method of Part 2 of the *New Organon* is exclusively concerned with discovering laws of nature and not with understanding the nature of particular beings such as men and their ends or goals. Thus Bacon's philosophy claims to illuminate "action" only in the sense of "production" and not at all the ends or goods of human life. Therefore, as stated, the ancient moral teaching, at least insofar as it is not derivative from the first causes and principles of contemplative knowing, is a legitimate way of understanding the ends or goods of human life. Moreover, we can speak of a rivalry in this context, insofar as the ancient knowledge of practical life as well as the Baconian remain "prescientific" and are devoid of dependence on modern natural science. Therefore, Bacon's reflection on the "excellency of the end" in *New*

Organon 1.129, to which we now turn, is not based on that "great mother of the sciences," that is, "natural philosophy," as was his announced program at *New Organon* 1.80, 127.

THE QUESTION OF THE END

Bacon concentrates his argument regarding the end in the closing aphorisms of Part 1, but primarily in 1.129. This famous passage appears to propose two versions of the end that are contradictory. The first and longer discussion contends that the "most wholesome" and "noble" ambition is "to establish and extend the power and dominion of the human race itself over the things of the universe." The second version of the end asserts, "The very contemplation of things as they are, without superstition or imposture, error or confusion, is itself more worthy than all the fruit of inventions." It thus appears that in the same aphorism of some three pages' length we have the new Baconian goal of power over nature side by side with a reassertion of the traditional ancient primacy of the contemplative end. As we have suggested, we meet in *New Organon* 1.129 a critical text for the relation of Bacon to ancient philosophy.

The dispute in recent years over whether Bacon's end is power or contemplation would have proved less troublesome if it had been recognized that Bacon speaks of "two ways of contemplation," as suggested previously. For it cannot be the ancient contemplation that Bacon is praising in 1.129 and in a similar passage in 1.124, which states, "The contemplation of truth is a thing worthier and loftier than all utility and magnitude of works." The ancient contemplative way is a "flight" or "leap" to first and final causes that is traceable to the corruption of religion, as we have seen. Of course, Bacon does not specify which contemplation he has in mind in 1.129 and 1.124. He perhaps expected that his inattentive reader would assume that he means the ancient contemplation, as that with which he is most familiar.[35]

The first thing to notice about these passages at 1.124 and 1.129 is that nothing is said about contemplation of what is first, in the way of first or ultimate causes or principles, as in the pertinent passages in the ancient Platonic and Aristotelian sources.[36] Both Baconian passages omit mention of precisely those ultimate or first beings or causes that are said to be theoretically unjustified and harmful to inquiry in the *Idola* at *New Organon* 1.48 and 65.

In 1.124, Bacon says, after the eulogy of contemplation cited, "I am building in the human understanding a true model of the world [*exemplar mundi*] such as it is in fact, not such as a man's own reason would have it to be." Here he is repeating the exclusion of those final causes that he has stressed previously are the defect of the ancient contemplative way: it is

hardly conceivable that in this very sentence he is reasserting the truth of the ancient contemplative way.

The ancient contemplation was choiceworthy because of the dignity of the highest things that it understood, regardless of whether accompanied by beneficial results. Bacon, however, does not refer in 1.124 to the dignity of the highest things. What is "worthier and loftier" than "utility and works" is "the contemplation of truth," which produces "serene tranquility." Whereas the ground of the dignity of ancient contemplation had been located in the objective order, in the present contemplation in 1.124 the ground of worth is subjective, tranquility of the human psyche. The same result is obtained from 1.129. What is "more worthy than all the fruit of inventions" is "the very contemplation of things as they are, without superstition or imposture, error, or confusion." Thus the details of the contemplation presented in 1.124 and 129 corroborate our conclusion that it is Bacon's own contemplative way that he is praising. It might appear similar in certain respects to the tranquility and freedom from superstition of ancient Stoic and Epicurean thought. But what sets it apart from them is ultimately the same difference that separates it from Plato and Aristotle: the utter absence of any relation to eternal or deathless beings or an order of nature.

Harmonizing mastery of nature with Bacon's own new contemplation in 1.129 proves quite feasible. The methodical ascent, which replaces the "flight" of the ancient ascent, cannot be motivated by some "natural desire to know." The reality of that desire has proved to be the deluded flight to final causes. It is replaced by the contemplation of things as they are, "without superstition or imposture," but without Bacon's saying that this has its source in some natural desire. Bacon makes a universal assertion about human desire that is grounded on his empirical knowledge of human nature: "that whereunto man's nature doth most aspire . . . is immortality or continuance."[37] That statement from the *Advancement* supplies the premise on which the mastery of nature argument is built in 1.129. Men desire immortality or that surrogate that is achievable through procreation or family but above all through honor and glory. The mastery of nature argument combines the humanitarian utility that accrues to all men with the honor and glory that are deservedly given to the human race, or to the philosophic teacher of the human race, for mastering nature to secure that utility.

In simplifying the line of argument for mastery of nature, we have assuredly deprived it of some of its profundity. The exchange of utility to mankind in return for honor from mankind is a mercenary relationship seen from the side of the nonphilosopher. In particular, Bacon leads us to wonder whether the self-esteem of the philosopher who recognizes his own intellectual mastery of nature is not a godlike satisfaction. It is a question whether

that satisfaction can be enhanced or diminished by the recognition or neglect by the rest of the human race. Bacon's justification of the superiority of his contemplative way to the ancient way owes more to ancient philosophy than it does to his own philosophic method. At least as regards the question of the end, the terms of Bacon's justification show the superiority of the ancient to the modern contemplation.

NOTES

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1. Plan of the *Great Instauration*, *Works* 1:135; 4:23–24. The *New Organon* was published in 1620 in one volume together with the preface and plan of the *Great Instauration* of which it was to be the second of six parts.

2. *New Organon* 1.26; *Works* 1:161; 4:51. [Author's translation. *Ed.*]

3. *New Organon* 1.115; *Works* 1:211; 4:103.

4. *New Organon* 1.125; *Works* 1:219; 4:111.

5. See Richard Rorty, *Philosophy and the Mirror of Nature* (Princeton, NJ: Princeton University Press, 1979), introduction; 42.

6. *New Organon* 1.26 ff.; *Works* 1:161; 4:51. "The human understanding is like a false mirror, which receiving rays irregularly, distorts and discolors the nature of things, mingling its own nature with it" (*New Organon* 1.41; *Works* 1:163–64; 4:54). It is the modern rejection of mirroring that makes the turn to foundations necessary.

7. René Descartes, *Le Monde ou traité de la lumière*, AT 11:3–4.

8. René Descartes, *Discours de la méthode, texte et commentaire*, ed. E. Gilson (Paris: J. Vrin, 1962), 443–45.

9. *Advancement of Learning*, *Works* 3:293; *Valerius Terminus*, *Works* 3:250; proem to the *Great Instauration*, *Works* 1:122; 4:8; preface, *New Organon*, *Works* 1:153; 4:42. (Ellis's translation does not correctly render "duae similiter contemplantium," *Works* 1:152.)

10. *New Organon* 1.58; *Works* 1:170; 4:60.

11. *Advancement of Learning*, *Works* 3:294.

12. See Jerry Weinberger, *Science, Faith, and Politics: Francis Bacon and the Utopian Roots of the Modern Age* (Ithaca: Cornell University Press, 1985), 176; "The remarkable assertion [in 1.129] of the superiority of theory to practice accords with the ancient utopian critique of the productive arts." Remarks such as "contemplative truth, not technological advance, is the main goal of Baconian science" by L. Jardine,

in *Discovery and the Art of Discourse* (Cambridge: Cambridge University Press, 1974), 116, remain unclear since they do not distinguish which Baconian sense of contemplation is meant.

Howard B. White, in *Peace Among the Willows: The Political Philosophy of Francis Bacon* (The Hague: Martinus Nijhoff, 1968), raises the question "whether contemplation means the same thing to Bacon that it means to Plato" (198ff.) and makes valuable clarifications but does not recognize that Bacon himself distinguishes two kinds of contemplation.

13. *Works* 1:153–54; 4:42.
14. *Nicomachean Ethics* 1095a30ff.
15. *Republic* 505Bff.
16. Plan of the *Great Instauration*, *Works* 1:139; 4:27.
17. *New Organon* 1.62–68; *Works* 1:173–76; 4:63–66.
18. *New Organon* 1.65; *Works* 1:175; 4:65.
19. *De Augmentis* 4, *Works* 1:570–71; 4:364–65.
20. *Advancement of Learning*, *Works* 3:354, 355.
21. *Advancement of Learning*, *Works* 3:357–58.
22. *New Organon* 2.9; *Works* 1:235; 4:126.
23. *Physics* 196a25ff.; 199a3–5.
24. *New Organon* 2.36; *Works* 1:297–98; 4:183–84.
25. See G. Rees, "Mathematics and Bacon's Natural Philosophy," *Revue internationale de philosophie* (fasc. 4) (1986): 414: "[Bacon] was a convinced antifictionalist. He believed that the principal systems of his day, the Ptolemaic, Tychonic, and Copernican, were merely arbitrary and competing methodisations of celestial appearances—methodisations which, whatever their predictive value, were worthless because none represented the actual course of the heavenly bodies."
26. Plan of the *Great Instauration*, *Works* 1:138; 4:26.
27. Plan of the *Great Instauration*, *Works* 1:138; 4:26.
28. *New Organon* 1.66; 2.9; *Works* 1:176, 234; 4:66, 126.
29. *New Organon* 1.66; *Works* 1:176; 4:66.
30. *Works* 1:395; 4:253.
31. *New Organon* 1.75; *Works* 1:184; 4:75.
32. *Advancement of Learning*, *Works* 3:265.
33. Cf. Antonio Pérez-Ramos, *Francis Bacon's Idea of Science and the Maker's Knowledge Tradition* (Oxford: Oxford University Press, 1988), 97.
34. *Advancement of Learning*, *Works* 3:265.
35. In the plan of the *Great Instauration* Bacon advances the rhetorical principle "He that is ignorant (says the proverb) receives not the words of knowledge, unless thou first tell him that which is in his own heart," *Works* 1:134; 4:22.
36. *Republic* 484B1-5, 484C1-D2; *Metaphysics* 981b26ff.
37. *Advancement of Learning*, *Works* 3:318.

Chapter Three

Bacon's Ontology

The last philosopher who took Francis Bacon seriously was probably Immanuel Kant. Kant shared the belief held by Leibniz and d'Alembert, Rousseau, and Vico that Bacon was the first of the moderns. It is useful to remember Kant's estimation, because the most common charges against Bacon are that he is ignorant of the mathematical nature of scientific method and that his science is utterly superseded by the achievement of Isaac Newton. Kant's credentials as a student of science, and of Newton in particular, are more than adequate. His judgment of Bacon suggests that the meaning of the modern break with the tradition is independent of that turn to mathematics that we find in Descartes and his generation. I shall begin by considering two passages about Bacon that we find in Kant.

For the epigraph to the *Critique of Pure Reason*, Kant chose a passage from Bacon about the proper goal that philosophy should pursue. He could not have chosen a more fitting tribute: the question of the end of knowledge is the fundamental question for Bacon, the question by which he declares his quarrel with the ancients. "I am laboring to lay the foundations," the passage runs, "not of any sect or doctrine, but of human utility and power."[1] Philosophy does not exist for the private enlightenment of some few individuals, nor for their perfection or pleasure, but for the good of humanity. Of this humanitarian concept of knowledge, so influential in, so peculiar to, the modern period, Bacon is the chief author.

Now it is often said, in deprecation of Bacon, that he supplied the rhetoric, or the prophetic vision, of the modern scientific development or of the utopia to which it was to lead, but of that science itself he knew little or nothing. In the same vein, it is alleged that the method of the *New Organon* is not a method that any scientist did or could use in scientific discovery. I think that

this remark, which disparages rhetoric in favor of "hard science," is based on a misjudgment of the means by which the new philosophy gained a footing in the world. Yet within that disparagement is concealed a prior question: is there a real link between Bacon's end—call it power and utility—and Bacon's means to that end, the new method of natural science?

Consider now a second passage from Kant, in which he praises Bacon for his insight into the method of science. "It is . . . only about a century and half since Bacon, by his ingenious proposals, partly initiated this discovery, partly inspired fresh vigor in those who were already on the way to it" (B xii). We easily recall the memorable sentences in the second edition preface in which Kant brings out formulae that encapsulate this secret. "Reason has insight only into that which it produces after a plan of its own. . . . [Reason must constrain] nature to give answer to questions of reason's own determining" (B xiii). These formulae are clues that we expect to follow in this essay. In one passage Kant draws our attention to Bacon's reform of the end of knowledge, and then in another he draws our attention to Bacon's means to that end, the methodical use of reason. Here, again, is that prior question on which I wish to lay stress: how are the novel end and the novel means related? Using the language from the Kantian context, does the end, utility and power, determine or condition the a priori, the plan that reason brings to the study of nature? So far as I know, we can't put together texts from Kant that answer that question. It is obvious that Bacon seeks such a reform of knowledge as will make mankind master of nature. But where is this mastery of nature located, in theory or in practice? Implicit here are two quite different ways of reading Bacon. Mastery of nature could be located in the theory itself—that is, theory itself could be so reinterpreted that it would cease to be genuinely theoretical. From this "pragmatized" theory there would follow by an internal necessity a new practice. The other way of regarding Bacon is to locate mastery of nature not in the theory, but in the application of theory to practice. On this second view, Bacon wants genuine theory, just as much as did the contemplative or speculative philosophy of the classic tradition. Its genuineness will be guaranteed for the first time by an experimental method that closes with the facts of nature. And it is because theory is for the first time equipped with the right method that its application will render men, for the first time, lords of the universe. On the first view, the relation of theory to practice is internal, and the two are homogeneous. On the second view, the relation is external, and theory and practice are heterogeneous. The first view holds that the unification of theory and practice is designed to benefit practice; the second holds that their distinctness will be most beneficial to each separately.

Students of Bacon for more than a century have been dominated by the second view, without any exception known to me. It has predominated because

the separatist view is regarded as the correct interpretation of modern science. Put simply, science is one thing, the application of science is quite another thing. I quote from a former director of the National Science Foundation: "Science, in its pure form, is not concerned with where discoveries may lead; its disciples are concerned only with discovering the truth."[2] This we may call the standard view. There are other views of modern science available, of course. What concerns me here is that this separatist view of theory and practice has controlled the study of Bacon for more than a century. It may or may not be the true view of science, but it certainly has kept us from seeing just what that a priori secret of Baconian method was to which Kant alludes.

To see why it is an obstacle, we plant our feet directly in the second part of Bacon's *New Organon*. All scholars of the separatist view acknowledge that the method presupposes an important a priori factor, the concept of form. All recognize what is obvious enough: that form, or law of nature, which mean the same, is the primary intelligible sought by Bacon's method. It is also clear enough that, however elusive this concept of form or law may be, it is most explicitly argued in one place, *New Organon* 2.4. In fact, in no other Baconian writing, published or unpublished, is the argument for form or law spelled out in as explicit a manner. But *New Organon* 2.4 begins by asking what is the relation of theory to practice? And the second sentence gives us this answer: "It is safer to begin and raise the sciences from those foundations which have relation to the active part, and to let the active part itself be as the seal which prints and determines the contemplative part."[3] It is on this premise that Bacon develops the concept of form or law; therefore it is indeed curious that it has gone quite without discussion. In fact among the distinguished studies of Baconian induction in this century I haven't found any that are interested in discussing whether the stress on mastery of nature, and the provision of bread for mankind, have any effect on the theoretical quality of Bacon's philosophy of nature.

I propose to take this primacy of practice in *New Organon* 2.4 as the clue to the a priori of the Baconian methodology. What comes to sight by pursuing this a priori I call the "ontology" of Bacon, in a special sense of that word that I will describe later. We first look more intently at the narrow terrain of this text, *New Organon* 2.4. We can divide 2.4 into three steps. First is the statement, already quoted, that it is practice which like a seal imprints and determines contemplative knowledge. This priority comes out of the following reflection: the roads to human power and to human knowledge lie close together, and are nearly the same. If we turn to the first page of the *New Organon*, to 1.3, we read that "human knowledge and human power meet in one." The roads may have a different origin, or different goals, but they intersect, or at least they may be made to intersect. Of course after their intersection they may

go their different ways. Whether they are genuinely heterogeneous is not here in question; their difference may be based on a delusion about one or both. But provisionally to accept the heterogeneity of power and knowledge is reasonable; for at least it is correct that no one prior to Bacon had conceived the right way to join them. Taking them as heterogeneous then, if they can be made to intersect, at the point of intersection "knowledge is power." The point of intersection is stated thus in 1.3: "Where the cause is not known the effect cannot be produced." Note that we have here only a negative formulation. Bacon does not assert the affirmative: "if you *do* know the cause, you *will* be able to produce the effect." To know the cause is necessary, but it might not be sufficient; you might not be able to put your hands on the cause. So far is Bacon from asserting that "knowledge is power" simply, he doesn't even utter that phrase, at least so far as I have discovered.

In the second step of 2.4, Bacon infers from this priority of practice to what is called a "true and perfect rule of operation." The rule being prepared must be certain, and it must also be free—not tied down to any one mode or material of execution. The perfect operational rule is "the same thing as the discovery of the true form." We are being told that it is the requirements of operation alone, or the road to power by itself, that leads to form, that is to say, law of nature. We must absorb the requirements of operation that lead to the law of nature, and only then we shall see that they also satisfy the requirements of knowledge as well. Operation requires that two conditions must be met; two conditions bring together the concept of form or law and the concept of a nature, each of which has a distinctive Baconian meaning. Bacon never defines the term "form," but at 2.2 he says by form he means law. It is easier, it is more acceptable, to use an old term with an old meaning, than it is to introduce new terms and new meanings simultaneously. In using the old term "form," he emulates Augustus Caesar, who used the old term "consul" that belonged to the Roman Republic in order to replace the Republic with the Empire.[4] A form, then, is a law, and 2.2 tells us that it is a law that governs the motions of bodies. Since these bodies are subsensible bodies, their laws have to be linked to some sensible manifestations. The law must be linked to the sense properties of things, which Bacon calls "natures." Bacon posits a one-to-one correspondence between a form or law and a nature. The double condition that the perfect rule of operation requires can now be stated: if the form, that is to say, the law, is present, the nature is present, and if the form is absent, the nature is absent.

Note that this biconditional in no way indicates that the form or law is a cause of the sensible property. Moreover, the tables of the method, which are the tables of the presence and absence of natures—sensible properties—in various contexts, are not stated in terms of cause. Bacon says, at 2.2, that "it

is a correct position that true knowledge is knowledge by causes." However, in the definition of metaphysics, the science of forms or laws, no mention is made of cause. We could conclude that all we need for operation is knowledge of this de facto correlation: every time you have the form or law, you have the nature. Bacon's illustration of his method seeks to establish evidence for the underlying form or law of heat, namely, that it is a specific kind of motion of bodies. "If in any natural body you can generate a dilating or expanding motion" then "you will undoubtedly generate heat" (2.20). He is far from claiming that he has demonstrated a law; still the absence of the term "cause," in these other contexts, suggests that its absence in the biconditional of 2.4 is deliberate.

We are still explaining the perfect rule of operation, and we have the second half of the rule still to go. The second part of the rule is meant to establish an additional reason for saying that the perfect rule of operation is the same as the discovery of the true form. It stipulates that the form or law must be known to be a part of, or subordinate to, a more general law, a law that is better known in the natural order of things than the form or law itself. Here and elsewhere Bacon is taking over and modifying the ancient distinction, best known to us from Aristotle, between the order of our knowing, which begins with what is first to us, and the order of being or nature. "The form of inquiry and discovery that was in use among the ancients . . . appears on the very face of their writings," says Bacon in 1.125. "The ascent was made to the first principles of science from sensible particulars and some common notions, helped with some portion of the most popular received opinions." This ascent was really a jump or leap, Bacon often stresses. Only in the descent from the first principles did Aristotle come upon those propositions or axioms called "intermediates," which are useful for practice. Bacon emphasizes that the intermediates which are useful for practice are discovered on the way up; the ascent to what is first, to first beings or principles, is not necessary for practice. But some ascent is needed for the sake of operation: if you know the more general law, that presumably enhances operation. Know the more general case, apply more easily the subordinate case: this is the implication.

We have now finished with the perfect rule of operation and are ready for the third phase, the perfect rule of knowledge. But operation has already put its stamp on knowledge: the perfect rule of knowledge is just a restatement of what has already appeared. The new rule is that "another nature be discovered that is convertible with the given nature and yet is a limitation of a more general nature, as of a true and real genus." We are now ready for the happy verdict Bacon passes on his own discussion: "These two directions, the one active the other contemplative, are one and the same thing; and what in operation is most useful, that in knowledge is most true." So 2.4 concludes.

This is utopia, the perfect marriage of theory and practice. The perfect marriage of theory and practice was first conceived in antiquity by Plato. In the *Republic* the problem to be solved did not consist in such a reform of philosophy as made it possible for it to apply to practice. Rather Socrates begins with the assumption that wisdom is accessible to the philosophers. This is the invisible utopian assumption that makes possible the ostensible problem: is it practicable for the philosophers to rule in the city? Bacon begins at the other end, with the reform of philosophy. The problem is not how theory can be applied to practice, but how to conceive that what most enhances human power is also what conduces to the truth. Is it really possible that, by giving the priority so blatantly to power, a perfect harmony of the claims of power and knowledge can be managed?

We look again at the utopia of 2.4, and we notice that while Bacon speaks of a more general principle to which a given form or law must be referable, he does not speak of the most general form or law. Elsewhere Bacon has a name for the most general form or law, the *magna forma* or *summa lex*. In 2.4 he is silent about the *summa lex* because it would destroy the harmonization of theory and practice. You do not need to know the *summa lex* in order to have a vast expansion of human power. As we said before, all you need to know for the sake of practice are the intermediates—any principle that is a generalization from sensible particulars yet falls short of the ultimate, the *summa lex*. "Utility and the means of working result entirely from things intermediate," says Bacon in 1.66. The intermediate is known in the upward ascent—that proves to be of great import for Bacon's whole utopian solution. It is correct, of course, that to know an intermediate may be to know only a necessary cause or condition of some operation, and not a sufficient one. But if it proves sufficient, by itself or in conjunction with one or more other such intermediates, then Bacon says you have a kind of guarantee that something has been known. It is practice or operability that makes an honest woman of theory. In this sense, then, it is the operative part that is the seal that prints and determines the contemplative part.

Suppose now that you look at Baconian methodology as a strictly theoretical endeavor, as does the British scholar Mary B. Hesse.[5] She immediately notes that genuinely to know a particular law, you have to know the next higher, and to know the next higher, the still higher, and so on, until you know the *summa lex*. And since she also notes that Bacon is very doubtful that you can know the *summa lex*, she concludes that you could never know even one particular law of nature. But that is no objection from Bacon's standpoint: he does not intend to be a theoretical philosopher.

To sum up, the law of nature is not a theoretical concept, as Bacon understands it. It is not *ultimately* a theoretical concept—that is what he wishes to

stress, although there is much evidence that can be brought on its behalf, to which we come later on. This conclusion can be confirmed by showing how law and materialism are related. In the *New Organon*, this materialism appears to be explicit and unqualified. "In nature nothing really exists besides individual bodies performing pure individual acts according to a law" (2.2). What strikes us as novel here, if we think of ancient materialism, is the combination of the introduction of laws with the ultimacy of bodies. But the ultimacy of bodies in Bacon consists only in the assertion that nothing of any other sort exists, not that they are ultimate as a source of the being of other things. They are not known as the first things, or the eternal beings; it is not from knowledge of these individual bodies that we understand laws. In his youth Bacon had tried to be an atomist, but by the time of the *New Organon* he explicitly repudiates atomism. "Nor shall we thus be led to the doctrine of atoms," he sums up in 2.8, "which implies that of a vacuum and that of the unchangeableness of matter (both false assumptions); we shall be led only to true particles, such as really exist." Bacon sought all his life for the true particles and for their properties; he believed it necessary to replace the inert atom of ancient materialism by a particle that had active properties of attraction and repulsion. But when he constructed his natural philosophy in its final form in the *New Organon*, he did not identify a single property of the true particle other than its being changeable. The true particle has no place in Bacon's natural science. But this one property of changeableness shows that Bacon has conceived a natural philosophy of a new type. What is sought for, what constitutes the natural order, is not any abiding first things, or first beings, but a hierarchy of laws. Strictly speaking, Bacon is not a materialist, if that means that he knows and demonstrates that all that is derives from certain primordial bodies. He is rather the founder of what came to be called "corpuscularism," which holds that natural philosophy does not need to know the simples or the ultimates, but only those parts of compounds which are themselves compounds, that is, what came to be called "corpuscles." The corpuscles are intermediates in Bacon's sense—neither sensible nor ultimate but in between. The concept of law is thus completed by a nontheoretical materialism that anticipates much of the corpuscularism of Bacon's follower, Robert Boyle.

We now try to sketch Bacon's ontology. The whole is made up of laws and of beings. The laws of nature are the first part of this ontology, and the other part is the beings. We approach this ontology best through the distinction between metaphysics, the science of laws, and physics, the science of beings. I am following the *New Organon* account, not the more famous classification in the *Advancement of Learning* (1605). In 1605 Bacon did not yet possess either his natural philosophy or his method, although he had some presentiments of his later views. In 1605 he had not yet decided whether to accept or

reject atomism, that is, whether his natural philosophy was to be theoretical or not. In *New Organon* 2.9, Bacon sets forth a "just division of philosophy and the sciences," namely, the primary division between metaphysics and physics. These familiar terms have to be scrubbed clean of their classical meanings and encoded with their new, Baconian ones.

Metaphysics is specified as "the investigation of forms, which are (in the eye of reason at least and in their essential law) eternal and immutable." In this specification, cause is not mentioned, although cause is part of the specification of physics that soon follows in the context. What is also striking is the suggestion that the forms or laws may be eternal and immutable, but only in the eye of reason: are they perhaps changeable in themselves, or is perhaps their status beyond our knowing? We return later to those questions. Physics is specified as "the investigation of the efficient cause, and of matter, and of the latent process, and the latent configuration (all of which have reference to the common and ordinary course of nature, not to her eternal and fundamental laws)." From this long description, we simplify to the major conclusion: physics is the science of beings. For the latent process and the latent configuration are concepts that belong to the study of beings. Beings means animals, plants, and inanimate substances such as minerals; these are the beings that are encountered in the "common and ordinary course of nature." This "ordinary course of nature" is a technical term of Bacon's used in a number of key passages. Since the ordinary course of nature is contrasted to what is known by the science of laws, it is just the prescientific world, or the ancestor of the "life-world" as the term is employed in our day. But whereas the life-world is something that we have to recover or rediscover, for Bacon the ordinary course of nature is that from which we have to escape. The world of ordinary experience is of beings, but as articulated into kinds of beings. The concepts of physics are kind-related, or intrinsic to kinds; the concepts of metaphysics cut across the kinds. Thus there are no laws of nature that are laws peculiar to one kind; there are no laws, for example, that are peculiar to the human species. Conversely, the concepts peculiar to physics, latent process and latent structure or configuration, do not cut across species, but are inherent in species.

It is quite clear that Bacon is interested almost exclusively in metaphysics, and not in the concepts peculiar to kinds of beings, that is, physics. Forms, that is, laws of nature, are the core. He gives us his celebrated method with much fanfare, but it is designed exclusively for the discovery of laws, and not for the discovery of concepts peculiar to beings. It is not a general method of induction. This one-sidedness of Bacon's method is poorly understood in the scholarship for one reason mainly. It is assumed that the relation of physics to metaphysics is one continuous ascent, from the less to the more general.

For example, Hesse says "the real distinction between physics and metaphysics for Bacon is the distinction between the lower and higher axioms of the inductive ladder."[6] But latent process and latent configuration are not less general versions of the laws studied by metaphysics; they lack any essential connection with laws. Latent process and latent configuration are known in the beings that present themselves naturally in the ordinary course of nature; but the laws are known only experimentally, that is, insofar as we transcend the species of the ordinary course of nature.

Here again the problem arises because of the failure to recognize the peculiar priority of the practical. The argument for the nature of metaphysics and physics begins with this sentence: "The rule or axiom for the transformation of bodies is of two kinds" (2.5). Transformation rule number one leads to metaphysics; and transformation rule number two leads to physics. It is because he wants to transform bodies that Bacon lays down his particular definition of a body. "A body is a troop or collection of simple natures." A simple nature is a generic physical property, for example, color or density. The definition of a body is also his definition of a thing, since in nature, as we saw earlier, nothing exists besides individual bodies. To transform a thing means, first, to transform at least one property. To each property, or simple nature, in Bacon's sense, there corresponds one underlying law. To get at that law, you study the property not in one kind of thing, but in as many as possible; much later, when you get skillful at method, you will learn to distinguish priority possibilities among the species—or what Bacon calls "prerogative instances."

What drives the Baconian endeavor is thus the quest for laws, which may give rise to transformations, and not the quest for the understanding of beings. Better stated, what is sought is indeed an ontology: just that way of looking at beings which is most favorable to operation. To be is to be a troop or collection of simple natures. This proposition proves to be highly influential in later philosophy and science. All the simple natures are equal; none is more essential than any other. And since the collection is the being, we need no doctrine of substance. This is a very scientific and nonmetaphysical way of regarding the world. This democracy of the qualities is the support that science has offered to modern democratic thinking from the time of Bacon's methodology. The vehicle that conveys this ontology into politics is Locke's epistemology, in which the simple natures become the simple ideas.

The quest for laws points in two directions—toward beings and beyond beings. Since beings are a collection of simple natures, each of which has an underlying law, a being could be regarded as the point of intersection of laws, each of which underlies that same simple nature in other kinds of beings. This intersection, which a being is, is a sort of traffic jam, as Bacon acknowledges: "For since every body contains in itself many forms of na-

tures united together in a concrete state, the result is that they severally crush, depress, break, and enthrall one another, and thus the individual forms are obscured" (2.24). We can of course approach this same being through the concepts of physics that are peculiar to this kind of being, which are just latent process and latent configuration. If you know latent process and latent configuration, then, Bacon suggests, you might know which laws could intersect with which other laws. If you could control this intersection, you could generate a being from scratch, as it were. Bacon says that for the understanding of beings, we have more to hope from the concepts of latent process and latent configuration, at least in the short run, than from the quest for the multiple laws that intersect in one being. This reminds us that the laws point not so much to the constitution of beings as beyond beings. The law of heat is sought not to understand this or that being, but rather to enable us to produce heat at any time, at any place, in any context. It is law as an operational transcendent of beings that liberates mankind from bondage to nature (2.17). Now since this metaphysics of laws emancipates us from nature, it is important to be clear that what nature here means is the ordinary course of nature.

It should now be obvious that it would be very revealing if we should be able to explain how Bacon came to hit upon his concept of laws. Perhaps such an inquiry would cast some light on the concept of a law of nature in the seventeenth century, upon which the history of science appears to be remarkably silent. I am going to try a flashback or two into earlier Baconian writings, to help us see how peculiar is the genesis of the concept of law. In the *New Organon*, as we have seen, the law of nature thesis exists side by side with the denial of a theoretical materialism. At the same time, the law of nature thesis is the very basis of the inductive method: it implies the ontological connection between laws and simple natures that the method is constructed to elicit. Our problem then is to discover the relation between three items: laws, materialism, and method. The key question is: is it the denial of theoretical materialism that leads to the discovery of law, and thus prepares the method?

We consider first an early, unpublished fragment, from about 1603, which has the title *Valerius Terminus*.[7] This writing is the prototype, in structure and subject matter, of the *New Organon* of seventeen years later. In the *Valerius Terminus*, the pragmatic end of philosophy is already fully explicit. The pragmatic end, mastery of nature, determines that inquiry must be governed by the same two standards, certainty of result and freedom to choose among options or means, as are stated in the *New Organon* 2.4. But they do not point to a law as the intelligible that will satisfy these requirements. In this early work they lead to a search for structure—for the underlying material structure that a

counts for the presence of simple properties, such as color. No rules of method are proposed; we have only a promise of method. The absence of laws and the absence of method suggest that it will be one and the same discovery that leads to laws and method. In the *Valerius Terminus* no theory of matter is broached; and no assertion of universal materialism is present. One last observation: Bacon announces in this early writing that there is a summary law of motion, which God has established in nature. He infers the summary law from a verse in Ecclesiastes, which says that men "can . . . not find out the work which God worketh from the beginning to the end" (3:11). Note that the Bible says nothing about law. But this general law, which is the ancestor of the *summa lex* of the *New Organon*, is not connected to any concept of particular laws.

Consider now a second writing, the *Wisdom of the Ancients*,[8] published in 1609. It purports to disclose the materialist philosophy concealed in the ancient fables of the Greeks, but it scarcely veils Bacon's own materialism. Bacon stakes out a claim to be an atomist in this writing, but he does not know the properties of the atoms. He knows that the atom is the first being, next to God; or, rather, he knows that Cupid, which means the natural desire of the atom, or the natural motion of the atom, is next to God. This natural motion of the atom is here identified with the *summa lex*. It is that impulse of desire that is impressed by God upon the primary particles of matter which makes them come together, and which by repetition and multiplication produces all the variety of nature. Of this law we cannot know the cause; that is, Cupid has no parent. He is an egg born of night. In nonmetaphorical language, the law, the *summa lex*, has the status of a *lex positiva*. We can refer it to God as a cause, but only by a leap; no natural theology is possible. Hence in this writing, materialism and law are linked, and law is said to derive from the nature of matter, which is the source of the atom's motion. But while the general or comprehensive law is asserted, as in the *Valerius Terminus*, here once more it is not coupled with the assertion of particular laws. Bacon wants to correct Democritus, who said that bodies have two motions, moving by their proper nature toward the center of the world, and concussion or rebound. Those two motions cannot account for the circular motion in the heavens, or for certain other phenomena. So Bacon starts by identifying the primal motion as an attractive and repulsive force acting between bodies. But this does not suggest to him a way to particular laws; and it is not surprising that the work contains no treatment of method.

It is in a third writing, called *On Principles and Origins*,[9] an unpublished fragment of about 1616, that the problem of materialism comes to a head. Up to and including this writing, Bacon is trying to combine the philosophical goal, mastery of nature for human benefit, with a theoretical

materialism. In the *Wisdom of the Ancients* a *summa lex* is combined with a general materialism, but Bacon cannot ascend from the compound bodies to the *summa lex*. He has no intermediates, or what we have called particular laws. But in *Principles and Origins* he states the primary problem to be overcome in a theoretical materialism. He advances what we may call the "heterogeneity principle." Democritus had recognized that the atoms or seeds of things must be unlike anything that could fall under the senses; he did not abide by his insight. "He should have attributed to the atom a heterogeneous motion, as well as a heterogeneous body, and a heterogeneous virtue."[10] The demand is being made that the compound and the atomic parts of the compound must be wholly heterogeneous. Only if the atom has wholly different properties can we be sure that the properties of the compound are due to the atoms, and not to the compounding. But Bacon does acknowledge that we must begin with the compound, that is, with sensible properties. The question now arises: how could we distinguish, within the compound's properties, those that are traceable to the compounding and those that are traceable to the atoms? We have no access to the atoms except through the compounds. In this writing Bacon gives no sign that he thought that Democritus or anyone else had a solution for this problem. To conclude, this writing is Bacon's most theoretical treatment of materialism. Nothing is said about mastery of nature, but it expresses the defeat of theoretical materialism.

We return to the *New Organon* from the early writings without having discovered the genesis of Bacon's concept of law. But we do not return empty-handed. We have discovered the necessary condition of that genesis—the abandonment of theoretical materialism. The import of that abandonment was primary in Bacon's mind in the twelve years during which he was drafting and revising the *New Organon*. He abandoned the notion that there are first unchanging bodies, in terms of which we understand the parts of compounds as well as their motions. By abandoning this thesis of Democritus and Lucretius, he became the founder of modern materialist physics. There are no abiding first bodies; those bodies that are finest and simplest now do not remain in that state; or if there are first bodies, it is not the case that we must derive the principles of motion from them. The marks of Bacon's rejection of theoretical materialism are easy to trace in the physics of Descartes, of Hobbes, or in the second book of Spinoza's *Ethics*.

When we ask how Bacon moved from that abandonment to the concept of law, we must follow the signposts he erected at various points in the *New Organon*. It is notable that we have to gather bits and pieces of the doctrine of form or law from scattered places in the work. The first large signpost is the great distinction Bacon insists on early in the work between "anticipa-

tions of nature" and "interpretation of nature." From his early *Valerius Terminus*, Bacon advanced the notion that we are all trapped by anticipations in our ordinary and natural human situation; but only in the *New Organon* does he identify the principal feature of the natural standpoint as our orientation in terms of the natural kinds or species. In place of the differentiation into natural kinds that we all accept from childbirth, he advances the notion that the most important phenomena are those that cut across the natural kinds. It is absurd to try to understand phenomena like heat, light, and gravitation in terms of the natural kinds of things; heat is one and the same whether you find it in sunlight, campfires, or in mounds of moldy leaves. The natural kinds have no evident eternity; they are the "habits" of nature, whereas heat, light, and motion will always be present in nature while the species will arise and perish. But Bacon took a bolder and more questionable step. He grouped together all the sensible properties, the ones that cut across the species, as well as all others, and brought them under one rubric, "simple natures." This, too, he had already done in the early *Valerius Terminus*. What is new in the *New Organon* is that he sees you can understand a being in two ways, as a collection of properties or as an organization of parts; he resolves to preserve both ways in their heterogeneity, assigning one way to metaphysics and the other to physics, as we already have seen. The first way, however, is more congenial because he has a way of understanding what is intelligible in the sensible property, but not the intelligible in the parts. What is intelligible in the property is its change: it changes because of movements in the small, subsensible bodies that we must suppose underlie every sensible change. Theoretical materialism may be dead; but this does not mean that we must abandon the insight that it is the *minima*—the corporeal *minima*, which are not atoms but corpuscles—and their motions that account for the changes. If, then, certain sensible phenomena, clearly demarcated in kind—as heat, for example, is—regularly change in certain ways, then it is reasonable to look for some regular pattern of motion in the underlying *minima*. If it can be rigorously established, the regular pattern of motion that is correlated with the sensible appearances we shall call a "law of motion." Normally this has to be done by experimentation; this type of inquiry Bacon calls "interpretation of nature"—he does not think it has ever been practiced before.

In Bacon's account of things, we are naturally immured in the ordinary course of nature, and therefore we anticipate nature, that is, take our bearings by the kind-articulation of the world. What is distinctive of Bacon is that he abandons the kind-articulation without ascending to the primordial bodies as did ancient materialism; in this respect he has for followers Descartes and many others. The ordinary course of nature is to Bacon's philosophy what the

cave is to Plato's. This fact is obscured for us, because we usually regard another doctrine, the famous *Idola*, the Idols of the mind, as standing to Bacon's philosophy as the cave to Plato's. But the entire doctrine of *Idola* falls within the topic "anticipations of nature," and the anticipations are a function of our place within the ordinary course of nature. All four kinds of *Idola* presuppose the ordinary course of nature, that is, a natural fact. So that while the *Idola* are differentiated by being either native (or innate) or adventitious, all have our natural condition as their basis.

The ordinary course with its natural articulation is not only the wrong starting point of reflection, it also prejudices the direction of philosophy, as the following passage indicates: "When man contemplates nature working freely," meaning in its ordinary course, "he meets with different species of things, of animals, of plants, of minerals; whence he readily passes into the opinion that there are in nature certain primary forms which nature intends to educe" (1.66). From the regular production of the species it seems reasonable to infer the presence of an intelligent cause of this production. To take our bearings by the natural species thus fosters the tendency to anthropomorphize the cause or causes of nature, or to think in terms of final causes. Bacon here is thinking of both philosophy and religion: it is noteworthy that while the doctrine of Idols culminates in the corruption of philosophy by superstition, there is no clear basis for distinguishing between philosophy and religion—at least false religion.

The motion of philosophy out of the cave is, according to Plato, a motion toward nature in the strict sense, toward the truly natural beings. But in Bacon the motion of philosophy out of the ordinary course of nature is a movement away from nature. This could seem to be incorrect: is it not a motion toward the truly natural, the laws of nature? Has it not been said that in modern science the Platonic ideas are replaced by the laws of nature? Of course we have learned that the laws are corrigible, by the self-corrective processes of science; but on the other hand, the ideas of Plato have always proved to be highly problematic in status; indeed it has been suggested that the ideas are just the permanent problems of philosophy.[11]

For Bacon the pertinent fact about the laws is that there is no natural way of access to what appear to be the most natural things. We transcend the ordinary course of nature in search of the laws, but we do so only through experiment, and experiment is always a work of art. It belongs to the realm of the artificial. Later men, among them Kant, thought that science is the perfection of the natural understanding, but this is not Bacon's view. The mastery of nature is understood as the victory of art over nature, and its means is the experiment. Experiment is necessary because "the secrets of nature reveal

themselves more readily under the vexations of art than when they go their own way." "Torturing nature" is a work of art, that is, of experiment.

But somebody might reply that it is precisely the controlled experiment that is repeatable, that is designed to yield the constants in nature. Can we not identify the constants with laws of nature? But at this point we recall that when Bacon said that the laws of nature are eternal and immutable, he added, "in the eye of reason, at least" (2.9). What restrains Bacon from saying that the laws of nature are unchangeable simply is just his sober appreciation of the requirements of theoretical knowledge. Truly to know a law is to know its relation to other and more fundamental laws, or to the whole. Again, he has recorded his view that the true particles are changeable. It is unlikely that if the true particles are changeable, the laws that regulate or describe their behavior are unchangeable. Of course the processes of change might have the structure of a repetition; Bacon suggests in one place that there is an eternal return of the stages of matter, and that it might be knowable by experimentation.[12] Yet he adheres to the view that if we use art to take a thing out of its natural state, the result cannot be some abiding truth about nature.

We bring this discussion to a close by considering perhaps the most interesting statement about nature in Bacon. In his natural history[13] he says:

> Nature exists in three states, and is subject, as it were, to three kinds of regimen. Either she is free and develops herself in her own ordinary course, or she is forced out of her proper state by the perverseness and insubordination of matter and the violence of impediments, or she is constrained and molded by art and human ministry.

Where in this threefold classification should we locate the laws of nature? In the third category, since they don't belong to the ordinary course of nature, or to the monstrous, and do come to sight via art, the experiment. As Bacon goes on to say,

> The first state refers to the "species" of things; the second to "monsters"; the third to "things artificial." For in things artificial, nature takes orders from man and works under his authority; without man, such things would never have been made. But by the help and ministry of man a new face of bodies, another universe or theater of things, comes into view.

We spoke in the first part of our paper of a Baconian ontology of laws and beings, both of which were natural. Now we have to correct that statement. We are on the threshold of the distinction between nature and history.

NOTES

"Bacon's Ontology" was a lecture delivered at St. John's College, Santa Fe, New Mexico, in February 1987.

1. Immanuel Kant, *Critique of Pure Reason*, trans. Norman Kemp Smith (London: Macmillan; New York: St. Martin's Press, 1956), B ii [Author's translation of Bacon's Latin—*Ed.*].
2. Alan T. Waterman (December, 1962).
3. Author's translation. *Ed.*
4. In the *Advancement of Learning* 2, Bacon mentions this report of Tacitus. See *Works* 3:353.
5. Mary Hesse, "Francis Bacon's Philosophy of Science," in *Essential Articles for the Study of Francis Bacon*, ed. Brian Vickers (Hamden, CT: Archon Books, 1968), 130–31.
6. Hesse, 118.
7. *Works* 3:220.
8. *Works* 6:605–87.
9. *Works* 5:461–500.
10. *Works* 5:464.
11. Leo Strauss, *Natural Right and History* (Chicago: University of Chicago Press, 1953).
12. *De Sapientia Veterum*, *Works* 6:651–52 [Latin], 6:725–26 [English].
13. *Preparative Toward a Natural and Experimental History*, in *The New Organon and Related Writings*, ed. Fulton H. Anderson (Indianapolis, IN: Bobbs-Merrill, 1960), 273; *Works* 8.

Appendix: Laws of Nature

This letter has the purpose of setting before you certain notions about "law of nature," in order to inveigle you into helping me clarify them.

I have just finished reading *Progress and Its Problems: Toward a Theory of Scientific Growth*, by Larry Laudan.[1] Laudan writes:

> Ever since the seventeenth century, the dominant research traditions within the physical sciences have presupposed that all physical changes are subject to invariable natural laws (either statistical or nonstatistical). Given certain initial conditions, certain consequences would inevitably ensue. Strictly speaking, this claim should be as true of men and other animals as it is of stars, planets, and molecules. Yet in our own time, as much as in the seventeenth century, very few people are prepared to abandon the conviction that human beings (and some of the higher animals) have a degree of undetermination in their actions and their thoughts. Virtually all of our social institutions, most of our social and political theory, and the bulk of our moral philosophy is still based on a worldview seemingly incompatible with a law-governed universe. [2]

The first thought that occurred to me on reading this was: why then don't we find in the philosophy and/or history of science some valuable studies on the meaning of "law"? At least so far I haven't found any—hence my own provisional attempt below.

The second was: was the discovery of laws—which? how many?—sufficient to establish the claims of universal determinism?—the problem you attacked in your paper on Newton.[3] (Laudan has a possibly useful reference on Laplace: R. Fox, "The Rise and Fall of Laplacian Physics," *Historical Studies in the Physical Sciences* 4 [1974]: 89ff.)

The "problem of determinism" is going to get only a few remarks. Of any theory or law we can say that it is no stronger than its initial starting points—from them, the length of the chain of inferences, involving as it does other theoretical problems, only makes it weaker. The starting points are always, and can only be, sense perception or a priori reasoning or some combination of the two. If we take type two, a priori reasoning, then Descartes's version of the law of inertia[4] is an example, which, taken together with the laws of collision, yields a determinism of nature for the physical sphere (assuming the conventional view of "metaphysical dualism"). But the law of inertia is not more evident to acting men (including the scientist) than what is present to sense perception and reflection thereon. In fact, it is less evident to Descartes than the proposition "there are bodies" which the law of inertia presupposes. Moreover, the law is a counterfactual: no actual bodies actually obey it. It presupposes the absence of contiguous bodies; but Descartes himself teaches the plenum (Lachterman's "contradiction").[5] Moreover, the laws of collision would seem to presuppose the law of inertia, hence are infected with its difficulties. And the laws of collision are not "intuitively" obvious; they don't accord with experience; and theoretical defects were found in them by Huygens, not to mention Newton. Moreover, Descartes was compelled to abandon this determinism when he sought to understand pleasure and pain; pained and pleased bodies don't obey his laws (that was the point of my "teaching of nature" article long ago in the *Review of Metaphysics*).[6] That is, animal "compounds" can't be understood in terms of the universal determinism governing bodies. The notion of "animal machine" was then not a scientific conclusion of Descartes—despite the vast hullabaloo created by the notion. The "animal machine" was an ideal, a "model" if you like, *against* which Descartes himself offered evidence. (The argument for animals as mere machines, in the decisive argument given in the latter part of *Discourse* 5, is notoriously bad—almost certainly a deliberately bad argument, whose purpose was to safeguard the spirituality of human beings; if animals are machines, then man alone is a spiritual being, with a soul that is, or may be, free and immortal.)

It is therefore not especially reasonable for Laudan—in the continuation of the passage cited above—to maintain that determinism is the great conclusion that should follow from the scientific discovery of laws in the seventeenth century. Laudan himself insists that history of science in the seventeenth century has to pay attention to metaphysical and theological considerations. But he neglects the possibility that such considerations cut both ways: Descartes both opposes and accepts traditional views.

Of course, one could probe the above interpretation, by asking, why did Descartes himself deviate from his determinism to allow room for the "teach-

ing of nature"—the nondeterministic description of pleasure and pain in animal compounds?

He could, perhaps, have been convinced that "metaphysical materialism" won't work. Hobbes at least realized that if mathematics is based on stipulated and not self-evident definitions, and physics as a mathematical science shares in this character of mathematics, then we can only know what we make, and we don't make nature. He then abandoned—at least implicitly—metaphysical materialism and therewith determinism. But Descartes did not do so. Nor did he question, as Leibniz did, the ultimacy of "extension"—that is to say, its capacity to account for the impenetrability of bodies.

But the suspension of determinism by Descartes when he proposed the "teaching of nature" doctrine suggests that he held some sort of "levels of description" doctrine. ("Levels of description" was a phrase advanced by John Dewey and other American "naturalists" early in this century to permit human action to escape the determinism of laws of nature.) In *Discourse* 5 (about a third of the way through), Descartes admits that he received a check, in the course of his deduction of "beings" from "laws," when he came to animals. As [Jacob] Klein was fond of pointing out, at some point between the *Regulae* and *Le Monde*, Descartes began to cut up large animals—a kind of experimental anatomy. Hitherto he had found a coincidence of the necessity of his (quasi-mathematical) deduction with the necessity of natural processes. His turning to experiment indicates that he abandoned this coincidence. This "check" in the deduction suggests that he was compelled, when he moved from "laws" to "beings," to enter upon a different "level of description."

The question then arises: is such a recourse to "levels of description" a genuine way of suspending or "transcending" the level of determinism at the more general level of *minima* which obey the laws of inertia and collision? Or is it a merely verbal escape route, which leaves intact the underlying determinism? Should one not look at the notion of law? Premodern thought is a science of beings, but modern science is always a science of "laws." One can then say: given the opposition of sciences of beings and laws, the science of beings always has precedence, since it is evident to *men as men*, whereas the science of laws always begins either with the a priori (Descartes's law of inertia) or with what is evident to men as men, and derives theories from that beginning—theories which today are entangled in the question whether they're merely human constructs, which, despite their empirical elements, will be superseded by other human constructs.

While this course is attractive, and has some power, still it takes a negative, dismissive standpoint towards the achievements of modern and contemporary

physics. It pretends to be Aristotelian in one sense: [Aristotle's] ethics and politics are relatively neutral to natural science and metaphysics. And yet he could scarcely have accepted a physics that was "metaphysically neutral," or whose concepts were merely "human constructs." But at bottom it isn't really Aristotelian, since Aristotle's endeavor was always primarily that of a philosopher who sought the "first causes and principles" of the whole. He would not have dreamed of saying that modern natural science has made no decisive contribution to our knowledge of the whole. He might have said: "Please read me more carefully: note that some parts of my physics are more dogmatic than others, which are provisional and 'hypothetical'—not in your sense, but Plato's (see *Republic* 7). Please also note that my physics is one thing, my *De Caelo* and its theory of 'crystalline spheres' is another: I was very guarded in my statements about the number and properties of 'unmoved movers' in *Metaphysics* Book 12."

So that if Aristotle were around, he would undoubtedly do exactly what I'm doing, trying to get a handle on things by studying the one book, the *New Organon*, in which a thinker set himself the task of replacing the ancient science of beings with the modern science of laws.

Before he got to Bacon, he would have confronted the entrenched opinions that (a) modern science begins with the Copernican "revolution"; (b) Kepler was the first to discover a law of nature in the modern sense, for example, a mathematically formulated description of a "natural regularity" (see below); and (c) Galileo was the first to discover a law of nature in the modern sense, since he proved mathematically the mathematical law governing the uniform acceleration of all bodies in free fall, whereas Kepler's law, while mathematical in form, is not proved mathematically ("deductively"), and is of restricted scope.

But Aristotle would have dismissed such opinions, since [Copernican astronomy] is not a physics or is only concerned with celestial phenomena; and neither Kepler nor Galileo seeks to offer either a complete physics, or a method that would lead to a complete physics, or attempted to offer (as Bacon did) that reflection on the central notion of "law" which is at least a complete approach to a complete physics.

Contemporary philosophy/history of science always begins with the fact of some scientific achievement, always with what Copernicus, Galileo, or Newton offered in the way of a new theory or law. In principle, however, there is no necessity for saying that it was impossible for Bacon to conceive the general notion of "law" without ever having himself discovered a single law. But I don't occupy that extreme position, in any event. I would say (1) that the notion of processes that are not processes confined to—intelligible in terms of—

kinds of beings, is as old as the pre-Socratics (for example, "rarefaction" and "condensation"); (2) that even in Aristotle the notion or definition of motion cuts across all the kinds of beings that move; (3) that examples from the moderns of laws may well have been known to Bacon; (4) that in his own examples of the "first vintage" of his method seeking the law of heat, [Bacon] makes sufficiently clear what he takes to be a law; and (5) that Bacon's example of a law of heat that takes heat to be the same in all its manifestations is clearly implicit in the medieval wrestling with the problem. (The medievals, apparently distressed with the "Aristotelian" necessity to refer the hotness in each kind of being to the "form" of that kind, decided upon a reduction to *three* kinds of heat—a big improvement on Aristotle that points toward Bacon.)

So I shall set forth what I now take to be the central aspects of "law" in Bacon. And what I would like from you is your opinion of the cogency of the resulting concept of law, for Newton, and perhaps after him.

1. The *incidence* of a law is not within, or relative to, the natural kinds, but is located in phenomena that "cut across" the natural kinds—in Bacon, "heat" or "bodies having heat." Still the law, or its effects, must manifest itself to experience, and our experience is primarily of natural kinds, therefore,

2. A law manifests its effects as a *quality* ("property," or "attribute" or "predicate") present in beings that fall in natural kinds—in Bacon, "simple natures." Since all qualities alter, come to be and perish; since this change of qualities is not explicable in terms of the qualities themselves; since all change of wholes that are corporeal is in terms of *minimal* parts or portions thereof, therefore,

3. A law asserts that changes in the corporeal *minima* are the cause of (the truth or "essence" of) the changes in the qualities. If then we generalize—a major step, even a "jump" or "flight" in Bacon's sense, by which he condemns Aristotle—all changes in wholes are derivative from changes in parts, and not from those "forms" of wholes by which Aristotle excludes necessitarianism, then

4. All laws are *necessary*, in the sense that they describe either (a) necessary processes of *minima* or (b) necessary relations between *minima* and qualities or (c) both. Probably Bacon wavers between (a), (b), and (c). But (c) is probably what he hoped to find, as is evident from *New Organon* 2.4. If the form, that is to say, the law, is present, the simple [nature] infallibly follows; if the form or law is absent, the nature "infallibly" is absent. Here Bacon gives us at least one clear indication (in c) of what "necessity" of a modern law of nature could mean: do you know of any other discussion? (I have to look up Kant on this.)

5. Law unifies *horizontally* the diverse manifestations thereof in different natural kinds by tracing to a single, common principle the same quality that is evident in them. *New Organon* 2.3: "whosoever is acquainted with forms embraces the unity of nature in substances [*in materiis*] the most unlike."

6. Hence, the two-sided function of law is (a) to homogenize or mitigate the difference between substances (or "natural kinds") as we "ordinarily" experience them in "the common course of nature," while (b) disclosing the true "specific difference" or the genuine "joints" in the *fabrica* of nature between, for example, Law A and its manifestation and Law B and its manifestation. A Baconian example would be the law of heat homogenizing the difference between astral bodies and terrestrial fires, while drawing attention to the difference between [itself] and the (alleged) law of "spontaneous rotation." Perhaps a better example of the latter: his law of heat and Newtonian "gravitational attraction."

7. Since each law is necessary, and all are laws of *minima*, that is to say, matter without the "formal" organization of wholes, every law stands in a relation of necessity to every other in principle, though this relation may not now or ever be known; or nature is a system of laws. Bacon states the necessary relation in the *locus classicus* in 2.4 on "form" or law, where we take "deducibility" to mean "stand in a necessary relation to. . . ." And the notion of "system of laws" is contained in his notion of a *summa lex* or *magna forma*, *New Organon* 2.26, 52 (and in other writings)—that is, if we construe the *summa lex* or supreme law to be the unified system itself.

8. A law, if it is to be known as a law, has a two-sided epistemological status, since on the one hand, (a) it can be established as a law in and by itself, if it passes the normative tests of the inductive method, but (b) is only fully known if known in relation to other laws, of which it may be a special case, and indeed, ultimately requires to be known in relation to the *magna forma* or *summa lex*. Bacon himself is fully prepared to say that his law of heat is a law if it passes the normative tests (the three tables of his method); but on the other [hand] speaks of "the law with its clauses" (2.2), which seems to refer to the *summa lex*; and at least implies that the law in its entirety, with all its clauses, may not come to sight immediately or at once.

9. A law therefore can be known as a law without a *vertical* unification of the whole of nature, which would result in the derivation (a) of each law from the *summa lex* and (b) in turn, of the *summa lex* from some original properties, or motions, of the ultimate material particles of all things. A different statement of 8 and 9 might be: whereas the second requirement of 8 would require that each law be known in terms of the *summa lex*—a possi-

bility to which Bacon seems open, as available to the human mind—still the question remains whether the *summa lex* is in turn derivable from the properties or motions of the ultimate particles. About the second possibility, Bacon seems to be skeptical—both in the *New Organon* and in the *Wisdom of the Ancients* (in "Cupid; or the Atom"). If the derivation of the *summa lex* from the ultimate particles were available, then in that case at least, and only in that case in fact, some beings in the universe would have laws that pertain to them as such—*in propria persona*, as it were. Hence—since such ultimate particles are simples—no natural compounds (or "concrete" or "mixed" bodies) have laws that pertain to them as such. Accordingly,

10. The concept of law bifurcates nature into phenomena that have explanatory laws, and actual beings that do not, but are rather to be understood as beings constituted as a congeries of laws that are "coupled" or "copulated" in the *forma copulata* which is unique to this kind of natural, compound being. This statement relies on 2.17:

> I do not at present speak of compound forms [*de Formis copulatis*], which are, as I have remarked, combinations of simple natures according to the common course of the universe: as of the lion, eagle, rose, gold, and the like.

This bifurcation is not overcome by the "latent process" and "latent schematism," since these concepts are not themselves laws, or derivable from laws, even though they affect, perhaps govern, the manner in which laws can inhere in some kind of concrete being.

I'll stop at this point, since these ten points are interesting enough, provided they are really sound for Bacon, and perhaps for much that comes after: you have some trial balloons to shoot at. I have a batch of questions myself. Probably the whole compound/part distinction is no longer useful as an explanatory distinction in contemporary thought. Probably one has to talk about "things with properties" on the level of phenomena to be explained, but talk about "minima with their relations" on the explanatory level of law. Probably the latter isn't good enough to get at Descartes; what constitutes and differentiates "a body" is its unique motion, which is neither an accident of it, nor a relation . . . and so on.

Laudan says, "Recent studies have shown, for instance, that the concept of 'natural regularity,' whose pre-history can be traced to antiquity, underwent a major alteration during the seventeenth century."[7] Fair enough, but this is too vague, and nobody I've as yet run across seems to face the possibility that the alteration in question was the change from understanding natural regularity in terms of "form" to understanding it in terms of "law."

NOTES

"Laws of Nature" is a draft of a letter dated July 25, 1982, which was slightly revised (July 26), and sent to Richard Hassing. Notes have been supplied by the Editors.

1. Larry Laudan, *Progress and Its Problems: Toward a Theory of Scientific Growth* (Berkeley and Los Angeles: University of California Press, 1977).
2. Laudan, 120.
3. Richard Hassing, "Wholes, Parts, and Laws of Motion," *Nature and System* 6 (1984): 195–215.
4. *Principles of Philosophy* 2.37; AT 8:62–63.
5. See David Lachterman, "The Physics of Spinoza's *Ethics*," in *Spinoza: New Perspectives*, ed. R. Shahan and J. Biro (Norman: University of Oklahoma Press, 1978), 80–81.
6. Reprinted herein. *Ed.*
7. Laudan, 181.

Chapter Four

Bacon's Humanitarian Revision of Machiavelli

1

The concept of "humanity" is found in antiquity, but "humanitarian" thought is recognizably modern in character. The core of humanitarianism is the belief that man's primary allegiance is to the good of humanity or the human race and especially the future of the human race. The good of humanity transcends the good of the individual. It is therefore an alternative to other goods that claim to transcend the good of the individual—one's family, one's country or fatherland, one's gods or God. In this essay I am mainly concerned with the alternative of allegiance to one's country or fatherland, on the one hand, or, on the other, allegiance to humanity. Francis Bacon is the first philosopher who deprecated the claims of political society in favor of allegiance to humanity. He reinterpreted the goal of philosophy or science as the mastery of nature for "the relief of man's estate."[1] The relief of the human condition takes precedence over every political goal. A society based on this principle had never existed or even been conceived prior to Bacon; a wholly new concept of philosophy or science required a wholly new concept of society. Bacon had therefore to imagine a political society in which the goals of humanitarian science have first priority in the form of utopia—the *New Atlantis* (1627).

Bacon's utopian humanitarianism appears to stand at the opposite pole to Machiavelli's political realism. Machiavelli knows no higher allegiance than to political society and no higher glory than can be bestowed by the fatherland, except for the discoverer of new political modes and orders. He condemned utopian thought more categorically perhaps than any other writer in a celebrated passage of *The Prince*, chapter 15. "Since my intent is to write

something useful to whoever understands it, it has appeared to me more fitting to go directly to the effectual truth of the thing than to the imagination of it. And many have imagined republics and principalities that have never been seen or known to exist in truth."[2] Bacon's relation to these statements is not simple. The author of the imagined utopia of the *New Atlantis* also endorsed these Machiavellian assertions. "As for the philosophers, they make imaginary laws for imaginary commonwealths; and their discourses are as the stars, which give little light because they are so high."[3] He accepted the starting point of that realism which underlies Machiavelli's rejection of utopias. "We are much beholden to Machiavelli and others that write what men do, and not what they ought to do."[4] In the *Advancement of Learning* (1605) he cites Machiavelli some ten times, almost always favorably. No other seventeenth-century philosopher, to my knowledge, so much as publishes a mention of Machiavelli during his lifetime.[5] There are three principal types of Baconian political writings. The utopian and the "enlightenment" writings whose theme is humanitarian science are manifestly anti-Machiavellian.[6] But a third type is imperialist and Machiavellian in its precepts, as is often noted,[7] and says nothing of humanitarian science. Baconian politics is thus an enigmatic mixture of Machiavellian and anti-Machiavellian elements. My purpose will be to show that the acceptance and revision of Machiavellian thinking is the most fruitful avenue to Bacon's humanitarian philosophy.

2

Machiavelli and Bacon are generally regarded as founders of diverse modern traditions. One established the "political realism" whose lasting impress begins with Hobbes; the other introduced the priority of method in all inquiry and the experimental understanding of method. Bacon's well-known admiration for Machiavelli might suggest indebtedness. Yet that indebtedness is not generally thought to point to a constituent influence on Baconian philosophy. Machiavelli's and Bacon's subject matter, methodology, and conception of philosophy—if, indeed, Machiavelli has one—are regarded as discrepant. Machiavelli wrote almost exclusively on political man and not about natural philosophy or methodology; Bacon wrote many treatises on methodology and natural philosophy but only the short "true greatness" treatises and some essays on politics.[8] Machiavelli makes only incipient efforts to connect his account of human nature with general principles of nature. He implies the eternity of the world, but more with the goal of indicating the transience of all religions than of supplying the natural horizon for human nature.[9] For Bacon, however, "natural philosophy" is "the great

mother of the sciences"[10] and cosmology is an incessant concern. Neglect of natural philosophy is the one capital charge Bacon lays against all the three human epochs in which science and learning have flourished. As regards "moral and civil philosophy" in particular, unless "nourished by natural philosophy" they "altogether lack profoundness."[11] Machiavelli's procedure, often described as "scientific," is essentially premethodical in the Baconian and modern sense. Despite its sophisticated use of an extraordinary breadth of evidence, its reliance on ordinary (even if firsthand) observation requires, from Bacon's methodological point of view, revision and replacement by the evidence of controlled experimentation. Stated in Baconian terms, Machiavelli relied on the anticipations of nature as much as did Greek philosophy; what is required is interpretation of nature mediated by experiment.[12] Baconian philosophy exhibits a structure of a wholly new type. The elaboration of methodology is followed by "natural and experimental history," which are the "foundations" of natural philosophy from which arise the particular sciences, including morals and politics.[13] To sum up, Machiavelli's is a completed and autonomous political science, whereas in Baconian philosophy, only a considerable development of natural philosophy at some unknown future time will permit the achievement of a definitive moral and political science.

Nevertheless, the heterogeneity just sketched must undergo revision when we consider the end of Baconian philosophy. In the foregoing contrast, which reflects the view generally held of Bacon, we have been utilizing the programmatic statements of the plan of Baconian philosophy in the *Magna Instauratio* prefaces, which preceded the text of the *Novum Organum* in the 1620 publication. This program abstracts from the end or the good that guides the program; it does not tell us to which part of philosophy the discussion of the end belongs. According to the program, the *Novum Organum* is the methodological or second part of the *Instauratio;* but within the *Novum Organum* we find the determination of the end, which emerges from the confrontation with Machiavelli. Baconian philosophy has a surface plan and a deep structure.

The question of the end is the decisive question of philosophy, as Bacon repeatedly stressed from the *Advancement* onwards. On the basis of this agreement with ancient philosophy, he sought to reject its conclusions. As Machiavelli had done before him by implication, Bacon rejected the dominant ancient view that the end or good of philosophy is "contemplation" or theoretical knowledge of "the first things."[14] In contrast to Machiavelli, his rejection followed upon lengthy inquiries in natural philosophy. Only by ignoring these inquiries can we attribute to Bacon the view that "knowledge is power," which exceeds in crudity anything he actually said.[15] To compress

his results to the essential point, the first principles of the natural whole are not available to the human mind: the required objects of ancient contemplation are lacking. "The most general principles in nature ought to be held merely positive . . . and cannot with truth be referred to a cause."[16] Nevertheless, the quest for the most general principles remains imperative, even though they do not attain to first principles. It is in this restricted sense that Bacon's occasional endorsements of the priority of contemplation must be understood. To be sure, Bacon sometimes denies the ancient contemplative view with psychological arguments of Machiavellian type: if the understanding is "no dry light"[17] but infused with the passions, it is not open to the truth of the highest principles. But such psychological arguments are auxiliary only; they do not explain why inquiries in the terrain of natural philosophy do not attain ultimate principles, why they do not reach what is first "in the order of nature."[18] According to Bacon, the ultimate principles of nature are not available, but they are also not necessary: the evidence of experimental method suffices. Yet it is precisely method that cannot, at the outset, determine the end of Baconian philosophy. The scientific or methodically certified knowledge of the good will be available only after the progress of natural philosophy.[19] Accordingly, Bacon must turn to premethodical or prescientific knowledge to determine the good that will guide his scientific reform of philosophy. It is here, after his rejection of antiquity, that he confronts Machiavelli.

3

Bacon's thesis about "the excellency of the end in view" in *Novum Organum* 1.129 is both Machiavellian and anti-Machiavellian.[20] Machiavelli had compressed his various precepts for the true prince into a single formula in *Prince* 25: mastery of *fortuna*. Mastery of fortune or chance is limited to human affairs, and the means of conquest are solely political ("new modes and orders").[21] In 1.129 Bacon universalizes the range of mastery to "lordship over the universe" and locates the means in science or the method of science. It is the human race, and not some particular regime, that embarks on the project of universal mastery; and it is the same human race and not a mere part thereof, that is the beneficiary. While Bacon's humanitarian project subordinates the political ends and means of Machiavelli, it nonetheless proceeds from Machiavellian premises in 1.129. Machiavelli had contended that the highest benevolence to man coincides with supreme human power in the founder of new modes and orders, who accordingly merits the highest glory. Bacon accepts the premise that the coincidence of

highest benevolence and power merits the highest glory, but alters the members of the coincidence. He claims that inventions and arts are more benevolent than even the supreme political actions, and that the arts or, rather, the method that can discover the arts also has greater power. On Machiavellian premises Bacon asserts the superiority of humanitarian science to the highest Machiavellian goals. Thus the deciding argument for the highest end is a revision of Machiavelli. It is important that we recognize its *locus classicus* as *Novum Organum* 1.129. The lengthiest discussion of the end in Bacon is found in Part I of the *Advancement*, which he reprinted with little change in Book I of the *De Augmentis* (1623). But only in the *Novum Organum* do we find the goal of "lordship over the universe" coupled with its instrument, the new method.

The first argument of 1.129 moves from honor to that which merits honor—benevolence. Bacon distinguishes between divine and merely heroic honors, following "the judgment of former ages." Divine honors were awarded to the authors or introducers of inventions and arts. Heroic honors were accorded to those whose actions were "civil" or political—founders of cities and empires, legislators, liberators of their country from long-endured evils, and destroyers of tyranny. By choosing the terrain of honor Bacon signals his contest with Machiavelli, who had made glory the highest end. In a parallel passage in the *Advancement*,[22] two of Bacon's four examples of political greatness are identical with two of Machiavelli's canonical list of four great founders in *The Prince*: Romulus and Theseus.[23] The superiority of art to politics is initially derived only from ancient opinion. Bacon gives no examples of either kind of honor in 1.129; in the parallel place in the *Advancement*, the examples of divine honor are questionable because of their mythological sources. Bacon is aware that the origin of inventions and arts is often obscure and the identity of political benefactors much better attested. He shifts from opinion about honor to reasoning about the benevolence that deserves honor. Inventions and arts are more benevolent than political actions because they are not limited in extent to a particular regime, or in time to the regime's duration. Moreover, arts and inventions are introduced and spread peacefully, but political action must use force to establish, or to perpetuate, a regime. Art benefits men no matter what the political regime may be; its benefit continues through and beyond the overthrow of the regime. Citizens of democracies, oligarchies and monarchies use the same artifacts and practice the same arts; below or beyond the antagonisms of warring countries we easily perceive the common and inherited pool of art and artifact. Art is neutral to the oppositions of good and bad regimes because it is not neutral to the prepolitical or at least nonpolitical goods of human life.

Bacon's movement of thought in 1.129 seems to be interrupted by somewhat curious theological arguments. We must reconsider the notion of divine honor in order to connect the preceding theme with theology. The root of Bacon's humanitarianism is the benevolence of arts and inventions. Attributing divine honor to human authors of inventions and arts is in one respect unusual. Honor is customarily the object of aspiration, but divine honor means divinization or apotheosis of human beings, as the parallel in the *Advancement* confirms.[24] Can one aspire to be a god? Cases of aspiration to be a god are far better attested among political founders—an Alexander or a Caesar—than among authors and introducers of arts and inventions. But political divinization was normally imposed through edict, and often publicly opposed; Bacon distinguishes and prefers the divinization accorded through "inward assent."[25] The "heathen" assented to the divinity of certain gods who bestowed arts and inventions on mankind. This was not the sole ground of assent to divinity; gods were also thought to be the sources of the most venerable laws and political institutions. Thus the thesis that to be a god (or to merit apotheosis) is to be benevolent is more securely grounded in heathen religion than is the thesis that to be a god is to be a humanitarian benefactor through arts and inventions.

In the middle, theological paragraphs of 1.129, the theology is not heathen but biblical. "Discoveries are as it were new creations, and imitations of God's works."[26] With the introduction of almighty God, the theme shifts to power. The arts in their universality have proved more powerful than political actions. Just how much will the arts be able to accomplish in the improvement of human life? Are they limited by the power of God or the power of men? Bacon now quotes Lucretius who speaks of Epicurus's "re-creation" of human life, although neither is mentioned by name. With this quotation invention comes to include doctrines and sciences; invention means simply finding out something that was not known before.[27] Bacon does not say whether he endorses the benevolence of Epicurus's discovery, but calling it a re-creation shows that it was limited by the uncreated beings (the atoms). By his next example Bacon indicates that he seeks to draw into consideration the power and benevolence of the biblical God. King Solomon said, "The glory of God is to conceal a thing; the glory of the king to search it out."[28] One might construe this to mean that God's great power is exercised in a benevolent way: his concealment is the necessary condition of the glory of human discovery. But such benevolence becomes problematic if man in his impotence is in dire need of knowledge to alleviate his natural misery. The actions of divine concealment and human unconcealment are opposed; therefore likewise their benevolence. Men must thus seek to alleviate their impotence by their own efforts and not by divine assistance: the action of men must be

compared with men and not with some god. Hence "man is a god to man," says Bacon, if we compare European men to "barbarous" men without arts.[29] Divine or natural barriers to human self-divinization may be overcome by human effort.

4

Bacon now turns to the goal of power simply, without the requirement that power be benevolent. We enter the terrain of the great question, is not Baconian philosophy essentially a philosophy of power, even if knowledge is not identical to power? To understand this step to unqualified power, we begin by observing that arts and inventions as known hitherto are of limited power. More universal in their incidence than political action, they remain particular as regards the kind of benefit they offer. The past limited state of the arts forces us to ask for the reason of this limit. Was not the quest for the benevolence of the arts limited by the required anticipation of that benevolence? But how can the benevolence of unknown powers be known in advance? Why not simply seek power, and suspend the demand for benevolence? Would this not be the most reasonable way to promote a vast increase in human powers, among which humans can then separate the good from the bad? Indeed, if man's natural condition is one of essential weakness, power itself is good apart from its use. On such considerations we can understand how Bacon can speak in the center of 1.129 of "printing, gunpowder, and the magnet" without alluding to their possible good or evil. The issue has become solely power: "these three have changed the whole face and state of things throughout the world." Perhaps Bacon is thinking of Machiavelli's concern with Rome and Christianity when he adds, "no empire, no sect, no star seems to have exerted greater power and influence in human affairs than these mechanical discoveries." These discoveries were "unknown to the ancients":[30] as regards power, modern man is to ancient man as a god to man.

The priority of power becomes ever clearer. Bacon removes the previous limits to the power of the arts by reinterpreting the sciences, above all natural philosophy, so that they are directed to the production of arts, and by supplying the sciences with a universal method of discovery. By the instrument of method we can "extend the power and dominion of the human race itself over the universe."[31] In the concluding paragraph of 1.129, Bacon asks: what will prevent the debasement of the arts and sciences to "wickedness, luxury and the like"? His first answer is that "all earthly goods may be debased" and he lists as examples wit, courage, strength, beauty, wealth,

and light itself. (He does not consider the example of justice, to which this objection would seem not to apply.) His final answer runs as follows: "Only let the human race recover that right over nature which belongs to it by divine bequest, and let power be given it; the exercise thereof will be governed by right reason [*recta ratio*] and sound [*sana*] religion."[32] It is the sequence here that is revealing. It is only after the creation of unprecedented power that the question arises, is this creation good? Bacon has no assured means whatever of knowing in advance whether the power created by making the human race seek mastery over nature can be governed in its exercise by a reason and a religion that have never confronted such possibilities. The wager or the gamble inherent in the unqualified priority of power to the possible good or evil use of power is essential to Bacon's humanitarianism. More precisely, the overwhelming objection to Bacon's program has always been this: will not man's increased power over nature inevitably lead to an enormous expansion of men's power over men? In 1.129 Bacon shows that he is quite aware of this objection.

The principle underlying his answer will appear within his final argument against Machiavelli. The first argument began with honor and moved to the benevolence that merits honor. The final argument begins with ambition and moves to the power for which we should be ambitious. Following Machiavelli, Bacon holds that benevolence is rare, and it is impotent, unless linked somehow with self-interest, especially the ambition for power. Again in the second argument, the political is deprecated in favor of the arts, now combined with science. Bacon distinguishes three grades of ambition for power. The first is the desire to extend one's own power in one's own country; the second is the desire to extend the power and dominion of one's own country among the human race. The second or "imperial" power has more "dignity" than the first but not less "covetousness" (*cupiditas*). "Covetousness" reminds us of the natural "acquisitiveness" on which Machiavelli founded his political science.[33] The defect of Machiavellian science is the defect of politics itself: acquisitiveness is always exercised at the expense of some other individual or country. Accordingly Bacon's third and highest kind of ambition for power must have an object that is transhuman and transpolitical: the ambition of the human race itself for power over the universe. The third kind of ambition is incompatible with the "normal" political world of competing nations, because it would only give them new technological means to exacerbate their violence. Bacon's program points to a world state. But even a world state would be a problematic realization of this program, since it would preserve the covetousness and the violence of the one or the few in power. What Bacon requires is a world society in which a certain depoliticization nullifies vio-

lence: this is the principle by which Bacon believes he can remove the danger of science being used to enhance men's power over men. This depoliticization is crucial to the account of the perfect society in the *New Atlantis*.

5

In the *New Atlantis* Bacon tells a fable about "Bensalem," an island or country in the "South Sea," which happens to be discovered by a ship manned by Europeans. As its name suggests, the regime of Bensalem is a new Jerusalem: "if there be a mirror in the world worthy to hold men's eyes, it is that country."[34] The *New Atlantis* is apparently a fragment; it ends abruptly just after the European narrator is told to carry this account of the blessed society back to the other nations of the world. Hence the continuation of the fragment that one might envisage would scarcely fill in the gaps in the account of Bensalem, which is in effect complete. The absence most often noted is of any treatment of political rule or authority in Bensalem. Consequently, several students of the writing have speculated about the depoliticization of the regime.[35] What has gone unnoticed is the connection of this depoliticization with the possible actualization of Bacon's utopia. For Bacon follows Machiavelli, as we have seen above, in condemning the futility of utopias that cannot become actual.

In the account of Bensalem, the present, that is to say, final structure of the society must be considered apart from the history that led to it. We must understand the perfect in order to appreciate the peculiar means by which it became possible. The present structure is dominated by two institutions. There is the family, its great festival ("The Feast of the Family," which honors the "Tirsan" or the father of thirty living descendants over the age of three) and marital customs; and there is the great scientific research institute called Solomon's House, and its projects and practices. (A third institution called Strangers' House, which takes care of voyagers who happen upon the island from abroad, does not enter significantly into the internal life of the regime.) Within the horizon of the family we discern the occupations of farmers, artisans, and merchants; within the structure of Solomon's House we find a vast hierarchy of experimenters and interpreters of experiments. There are public officials present in the persons of the governor of Strangers' House and of the local governors of cities and regions; and allusion is made to the fact of kingship. But their functions seem very limited. The local governor "put[s] in execution by his public authority the decrees and order of the Tirsan, if they should be disobeyed, though that seldom needeth."[36] It is implied, but not

said, that the local governors also exercise jurisdiction in marital affairs and vocational choices when no Tirsan authority is available. Bacon does not tell us how the governors acquire their office. The Tirsan, on the occasion of his festival, receives a scroll called "the King's Charter."[37] This one clear reference to a function of the king may be hardly more than a minor administrative task, perhaps delegated to the local governor. Honor is exclusively paternal or scientific—accorded to the Tirsan for success in generating a large family, and to the inventors of Solomon's House who receive statues. There is no military honor because Bensalem has no internal police force and no army or navy. The rest of the world does not know of Bensalem's existence, and Bensalem seeks no colonies, foreign commerce, or conquest. No political honor is mentioned presumably because Bensalem, lacking any political life worth mentioning, does not need legislators or statesmen. As regards this monarchy, we are not told who the king is, what his functions are, whether he has any relations with Solomon's House, how he acquired his throne, or how his succession will be determined

We are tempted to say that wisdom or knowledge and political power coincide in Bensalem, in some manner reminiscent of the *Republic*. But the Fathers of Solomon's House hold no political title, and the king has no jurisdiction over Solomon's House: coincidence is lacking. Wisdom is so embodied in the institutions that the political, and especially force, is minimized. The one class in the *Republic* to which virtually nothing in the Bensalem regime corresponds is the guardian class, which for Socrates is the preeminently political class. Nevertheless two kinds of decisions of great political importance in Bensalem are made. The continuing progress of scientific discovery requires repeated decisions on the desirability of publication to the general citizen body. And at the end of the *New Atlantis* a decision is made that Bensalem should abandon its centuries-long secret isolation, and make its presence known to the world.

Who makes these decisions and what is their claim to wisdom? We may dismiss the king, who is not said to decide or know anything. A Jewish merchant, Joabin, is called "a wise man, and learned, and of great policy, and excellently seen in the laws or customs of [Bensalem]."[38] The adjective "wise" had been applied to Altabin, a king whose reign anteceded the establishment of Solomon's House, and to the Father of Solomon's House, "one of the wise men of the [scientific] society," who judged the authenticity of a miracle in the first century AD.[39] Thus "wise" may be applied both to those who lack the scientific knowledge known to Solomon's House and to those who possess it. Wisdom does not necessarily comprehend both civil or political knowledge and natural philosophy. Joabin can then be called wise even though he has no mentioned association with Solomon's House and no natural philosophy. Cer-

tainly he is not said to be involved with either kind of decision mentioned above. On the other hand, the present occupants of Solomon's House, contemporary to the narrator, are not described as wise. Yet past occupants of Solomon's House were wise, as said before; since there is no suggestion of a decline but only progress of knowledge, we must conclude that at least some of the present Solomonic scientists are sufficiently wise. We can then accept the statements, which are moreover entirely explicit, that it is the scientists alone who sit in "consultations" and decide on publication,[40] and that at least one of them decides that Bensalem should abandon secrecy and "go public." In contemporary Bensalem the only comprehensive political decisions that need to be made are made by the wise Solomonic scientists.

To understand the possibility of this humanitarian utopia, we have to turn to its history. Bacon gives us mythical history to show us the principle of its possibility. Once upon a time—"about three thousand years ago"—the navigation of the world was greater than at present (in the seventeenth century). Of the great nations of the world worth mentioning, all were either destroyed by deluge, or defeated in warfare and declined, except for Bensalem. Ancient Bensalem was as political as the other great nations: its great and glorious kings made war and enacted and enforced laws, and commanded extensive armed forces. What made the difference between ancient Bensalem and modern, humanitarian Bensalem was the establishment of two fundamental institutions by King Solomona—its secret isolation and Solomon's House. Because the island was geographically remote from other countries, and navigation had suffered worldwide decline, Bensalem could be forgotten by the rest of the world in the course of time, provided that it eschewed all colonization, foreign commerce, and conquest. Secretly, to be sure, Bensalem did send ships to other countries to carry out scientific espionage. Unseen by the world, it saw everything, at least of scientific import. In the course of its history, the two main characteristics of Bensalem developed: its depoliticization and its prosperity. King Solomona may be said to have planned this historical evolution of Bensalem. Bensalem had to become unknown to the world of competing nations in order to free itself from the necessity of armed forces and warfare, so that its resources could be concentrated on scientific research, and the blessings of science bestowed on its citizenry rather than siphoned off for the military. Absence of the "normal" political world of striving nations is the necessary condition of depoliticization; depoliticization is the necessary condition of humanitarian society.

The mythical precondition of Bensalem—the decline of navigation which made its secrecy possible—is destroyed by the actual history of modern Europe, as the narrative shows. Navigation has revived: in the last 120 years, or roughly since the voyages of Columbus, no part of the globe has remained in-

accessible. Bensalem is no longer tenable: is it possible only given mythical conditions? But the absence of the normal political world of warring nations can be accomplished if the whole world becomes one Bensalem. Humanitarianism must become global. In the final paragraph of the *New Atlantis*, the Father of Solomon's House says to the narrator, "I give thee leave to publish this . . . for the good of other nations."[41] The enlightenment of the world begins with the portrayal of the goal of enlightenment, the perfect society. We must now consider whether Baconian enlightenment, especially in writings such as the *Advancement*, can effectively set humanity on the way to that goal.

6

The eighteenth century is usually regarded as the age of Enlightenment in which the activity of *philosophes* or the Republic of Letters sought to produce a society ruled by reason. The *philosophes* themselves usually recognized that their leading ideas were taken from seventeenth-century thinkers, among whom Bacon was prominent.[42] The central premise of Enlightenment is that the goals of philosophy or science, on the one hand, and society, on the other, are not in conflict but in harmony or, indeed, even mutually fructifying. This premise was argued by Bacon, especially in the *Advancement*, more explicitly and more exhaustively than by any other writer before or since. This premise was opposed by the thinking and the practice of premodern philosophy and premodern society. Consequently mankind has to be enlightened about the meaning and immense advantages of this new possibility. An Enlightenment writing has a theoretical content, but is itself a political action, since it is meant not merely to persuade the mind but to change the world. It must therefore be addressed to the world, or to the philosophers, the Republic of Letters, and the literate public at large. In Baconian terms, the vast project of scientific research will die stillborn unless mankind can be convinced that it alleviates the human condition and is therefore to their advantage or their posterity's. Thus Enlightenment is a new kind of doctrine whose content, if propagated, generates its own actualization in practice. It was Machiavelli who first turned to the quest for such "effectual truths."

At first glance, Machiavelli's "new modes and orders" place reliance on arms and not on doctrine or persuasion. "There cannot be good laws where there are not good arms and where there are good arms there must be good laws."[43] Arms are brought into relation to doctrine in another of his canonical sentences. "All the armed prophets have conquered and the unarmed ones were ruined."[44] In the case of the armed prophet (for example, Mahomet) arms are the necessary but certainly not the sufficient cause of conquest as well:

doctrine has undeniable political power. This prepares us to consider the assertion that all unarmed prophets have failed. "Unarmed prophet" makes us think of Jesus and Christianity: Christianity did not fail. We may be reluctant to estimate its success in persuading men genuinely to embrace the goals of the spiritual fatherland, but Machiavelli had no doubt of its worldly and political success, the only success that counted for him. He was forced to reflect on the reasons for and the consequences of its success. The same reason—doctrine—that accounts for its success proved to be the cause of its injury to sound politics. Machiavelli was not the first to conclude that Christianity "has led the world" into "weakness" by its advocacy of humility and charity, and especially by dividing men's allegiance.[45] What men owe to any and every earthly fatherland is worthless compared to men's allegiance to the heavenly fatherland. Christianity intended to transfer men's allegiance from one fatherland to the other, and it succeeded. This depoliticization was of little consequence so long as it remained a restricted affair—so long as its otherworldliness was proportionate to its limited incidence in the world. But the otherworldliness of Christian allegiance, far from diminishing when Christianity's expansion made it a worldly power, continued to be the source of that power. Any successful opposition to Christianity had then to oppose doctrine with rival doctrine. In order to repoliticize man, so to speak, Machiavelli's doctrine appealed to the natural selfishness or "this-worldliness" of men which, according to Christian doctrine itself, lives in the human heart.[46] This polarization receives a correction by Bacon while remaining in the element of doctrine.

Bacon's enlightenment politics seeks a middle ground between Machiavelli's disagreement and agreement with Christianity. His agreement with Machiavelli is most explicit in the thirteenth of the *Essays*, "Of Goodness and Goodness of Nature." "One of the doctors of Italy, Nicholas Machiavelli, had the confidence to put in writing . . . *That Christian faith had given up good men in prey to those that are tyrannical and unjust*." Bacon offers an interpretation of this Machiavellian text: "Which [Machiavelli] spake, because indeed there was never law, or sect, or opinion, did so much magnify goodness, as the Christian religion doth."[47] With the experience of the intervening century of religious wars, Bacon had increased evidence for his agreement with Machiavelli about the political extremism inherent in doctrinal zeal. In *Essays* 13 he therefore thought it "good to take knowledge of the errors of a habit so excellent,"[48] that is, of Christian virtue.

Bacon begins with nature rather than with Christian doctrine. He distinguishes between "goodness," which is a "virtue"—the "habit" of benefiting men, or *philanthropia*, that requires "right reason"—and "goodness of nature," which is an "inclination . . . imprinted deeply in the nature of man." The pairing of goodness of nature and inclination might seem to suggest that the

virtue has its beginning and direction in the inclination, or that virtue is by nature. Bacon indicates that this is not the case. Virtue or *philanthropia* is "affecting of the weal of men"; "the inclination to goodness . . . if it issue not towards men . . . will take unto other living creatures." The "Turks" are kind to "dogs and birds" but not to humans.[49] But Bacon is not a conventionalist: it is not being or not being born and bred a Turk that is fundamental. The natural inclination to goodness is genuine; so also is "natural malignity."[50] It is possible to build on the one and to correct and even utilize the latter with the aid of "right reason," which, broadly spoken, here means humanitarianism. Bacon then differs from Machiavelli who said that "men are bad" and denies that exceptions to his statement are politically significant. The inclination to goodness remains humanitarian in character, even though it may have subhuman outlets, since being "compassionate toward the afflictions of others" reflects man's strongest desire for "continuance" of life.[51] Self-love has priority to the inclination to goodness. Bacon construes "love thy neighbor as thyself" to mean, "divinity maketh the love of ourselves the pattern."[52] But self-love does not exclude the inclination to goodness, and would appear to mitigate pride or the pleasure in lording over others. A natural foundation has been given to support what Bacon calls "charity."

The doctrine of charity allows Bacon, in contrast to Machiavelli, to present his teaching as the perfection of Christianity. Charity is the virtue that cannot be excessive; the humanitarian benefit of science is charity; therefore we cannot have too much humanitarian science. In this way a biblical sanction has been found for the limitless scientific mastery of nature and the technologizing of human life. This course of argument may be regarded as a certain deviation from the spirit of the Gospels, and therefore some have spoken of Bacon's secularization of Christian charity.[53] There can be no scholarly objection to regarding his procedure as secularization provided that that term is deprived of its normal sense of an unwitting transformation of religious into nonreligious content. Bacon makes it easily possible for us to see that his alteration of the sense of charity is carried out with full awareness. He construes Genesis 1–3 to mean that God forbids to man only the "ambitious and proud desire of moral knowledge . . . of good and evil" and not "the inquisition of nature." Knowledge of good and evil, and especially of the "charity" that "governs" the use of natural knowledge, is known by divine revelation.[54] To be sure, one could wonder at this point whether the content of revealed biblical morality is identical with the charity that is the benefit of humanitarian science. However this may be, Bacon openly contradicts the exclusion of the rational quest for moral knowledge by explicitly placing "moral and political philosophy" and "ethics" within the jurisdiction of scientific method.[55]

One main precept of Baconian secularization is laid down in *Essays* 24, "Of Innovation." "It were good . . . that men in their innovations would follow the example of time itself; which indeed innovateth greatly, but quietly, and by degrees scarce to be perceived."[56] Innovation can be small, and certainly quiet, if it is invisible; and it is invisible to many or most if new notions are conveyed by the names of old ones. Bacon is "studious to keep the ancient terms," but his purpose is often deliberately politic in character: "to retain the ancient terms, though I sometimes alter the uses and definitions, according to the moderate proceeding in civil government." A great model for Bacon's procedure was Augustus's mode of corrupting the institutions of the Roman republic by preserving their names while altering their functions. "Although there be some alteration, yet that holdeth which Tacitus wisely noteth, *eadem magistratuum vocabula*."[57] These remarks serve in the context to explain why Bacon continues to use the old term "metaphysics"; in other contexts, why he retains the term "form" for the central concept of his "metaphysics," whose real sense is "law";[58] and why he retains "charity." The good, old names must preserve their good, old meanings for most men because belief is a function of desire. Baconian secularization is accordingly based on the ad hominem character of persuasion. "He that is ignorant (says the proverb) receives not the words of knowledge, unless thou first tell him that which is in his own heart."[59]

7

Bacon's enlightenment politics cannot be divorced from his imperialist politics. It might be thought that on some occasions he penned his more visionary enlightenment works that lead by peaceful doctrinal persuasion to the *New Atlantis*, while on other occasions he wrote the more practical imperial essays, "Of the True Greatness of Kingdoms and Estates" and "Of the True Greatness of Britain." Bacon, as perhaps most readers will grant,[60] shows a greater sense of calculation in his endeavors than of casual opportunism. Besides, in the *Essays*, a work which in successive editions bridges his whole career,[61] both the enlightenment and imperialist intentions are present in the same work—a fact that has gone largely unnoticed.

As remarked previously, Bacon advocates innovation that is gradual or invisible, like time, in *Essays* 24. Gradual change is enduring change because it becomes "custom," which takes time; "custom is the principal magistrate of man's life" (*Essays* 39).[62] "As Machiavelli well noteth . . . there is no trusting to the force of nature . . . except it be corroborate by custom" (*Essays* 39).[63] Indeed "custom only doth alter and subdue nature" (*Essays* 38).[64] Custom may arise from long-continued practice, convention, or law,

but its most influential agent is doctrine. The most powerful form of custom hitherto is religion. "The greatest vicissitude of things amongst men, is the vicissitude of sects and religions. For those orbs rule in men's minds most" (*Essays* 58).[65] In the context of *Essays* 58 the examples given are only of religions or religious heresies, but "philosophical sects" are frequently mentioned elsewhere; of the three causes of sects the central instance is "the eloquence and wisdom of speech or persuasion" (*Essays* 58).[66] Here Bacon can hardly be thinking of "the true religion,"[67] which had other and divine causality; still less can he be thinking of false religion. It is probable that he refers to his own humanitarian enlightenment, which imitates the Christian religion by its provision for faith, hope, and charity, as is most evident in the *Novum Organum*.[68] The desirability of lasting innovation through doctrine, while surely not as determinate in content or as thoroughly articulated as in other writings, is a significant theme of the *Essays*.

On the other hand, the *Essays* also intend to promote the ambition for "great place" and imperial glory by political action. There is nothing inherently imperialist in the statement that "power to do good is the true and lawful end of aspiring" (*Essays* 11).[69] But such assertions in the *Essays* lack any accompanying critique of covetousness in the ambition for power, which we noticed in the humanitarian argument of *Novum Organum* 1.129. When Bacon ranks kinds of honor in the *Essays* (55, "Of Honour and Reputation"), the honor of founders and enlargers of territories is given higher status than that of those who merely "reign justly, and make the times good wherein they live."[70] This perspective, which easily consorts with Machiavelli's, is most fully exemplified in "Of the True Greatness of Kingdoms and Estates" (*Essays* 29). True greatness turns on "forces" and "powers" and "martial greatness"[71] and not on just rule or public happiness. Money is not the sinews of war, nor is it fortifications, or armaments, but rather the "stout and warlike" disposition of the people.[72] The quantity of population must be numerous and expanding: "All states that are liberal of naturalization towards strangers are fit for empire."[73] "Just and honourable war is the true exercise" by which a state stays healthy.[74] But it is neither necessary nor useful to be too precise about "just occasions (as may be pretended) of war"; it is important that a state "sit not too long upon a provocation."[75] "For martial encouragement" it is indispensable to have a variety of forms of military "glory and honour" and especially valuable is "that of the Triumph amongst the Romans."[76] "Above all, for empire and greatness, it importeth most, that a nation do profess arms as their principal honour, study, and occupation."[77] The one significant deviation from Machiavellian precepts is the stress on sea power, prominent in "Of the True Greatness of Britain."

8

It is not easy to perceive the coherence of the three parts of Baconian politics: utopia, enlightenment, imperialism. Our starting point must be that the *New Atlantis* is not a utopia in the premodern sense, but a realizable regime. Bensalem presupposes "men as they are," unformed by any significant moral education, but institutions "as they ought to be." The realization of humanitarian utopia does need as a condition the abolition of the normal world of competing national states, as said before. But enlightenment does not produce this condition, neither in the poetic fable of the *New Atlantis* nor in the actual world. Bacon certainly launched his enlightenment doctrines in this normal world. But if one, or several, or all of the national states adopted the promotion of sciences, the result would not be the abolition of independent national states. Enlightenment is the necessary but not the sufficient condition of utopia. The introduction of the advancement of science whose ends are practical would lead, as it has in fact led, to the enhancement of the power of some and the weakening of other nations, and to the exacerbation of the scale of violence of all conflict. Enlightenment science will inevitably be used for the self-defense of some and the imperialism of other nations. Bacon's treatment of gunpowder in *Novum Organum* 1.129 shows that he is prepared to accept this development. The greater power of the technology of the moderns as compared to the ancients has disclosed a hitherto undreamed of possibility of global imperialism.

Is this not the defeat of the peaceful humanitarianism of the *New Atlantis*? Bacon's combined advocacy of enlightenment and imperialism indicates a negative answer. In the shorter run enlightenment science is a means that enhances imperial power, but in the long run imperialism is a necessary means to global utopia.[78] Enlightenment and imperialism together are the necessary conditions of utopia. Enlightenment without imperialism is impotent; imperialism without humanitarianism is perpetuation of the misery of the human condition.

In practice, the implication of the foregoing is that in the final phase the successful imperial power would impose humanitarianism on the world. We can hardly doubt that free political life would cease. This exclusion of political freedom might seem alien to the Bacon who as a sitting member of the House of Commons championed its prerogatives. We should not forget, however, that it was also Bacon who cited Machiavelli in the House of Commons to support British imperial objectives.[79] To be sure, internal political freedom and external imperialism are not irreconcilable, but the distinction between internal and external would not obtain in a world state. No political thinker of the first rank put a lower value on political freedom than Bacon, unless it be

Bacon's secretary for eight years, Hobbes. In the *New Atlantis* we find no significant residue of the long tradition of republican freedom. Today it would seem that we face the threat of Baconian science not in the ultimate but the penultimate phase: superpowers in world conflict exacerbated by ever more powerful and expensive technological weaponry. The Cold War may be over, but there is no reason to assume that such a conflict will not reappear or that new superpowers will remain locked forever in the stance of mutual deterrence because of the fear of wholesale destruction. The will to imperialism in one nation may well exceed that of another, and it is likely that the power of humanitarianism will vary inversely with imperialism. Baconian humanitarianism, which deprecates political honor and freedom, must always weaken our resistance to imperialism. The *New Atlantis* suffices to show that for Bacon longevity and vigor of bodily existence, as well as comfortable and affluent life, are greater goods than political freedom. Humanitarianism would dictate the rationality of abandoning political freedom for the sake of life itself, especially if that is the price of global utopia. As with his great teacher, the good end justifies every means.

NOTES

"Bacon's Humanitarian Revision of Machiavelli" is a revision made in 1983, with brief further revisions added in 1997, of a paper entitled "Bacon's Depoliticization of Machiavelli," delivered at the Northeast Political Science Association, Newark, New Jersey, 1981.

1. *Advancement of Learning* 1.5.11; *Works* 3:294. I have revised some of Spedding's translations. Chapter and section numerals for the *Advancement* are from the edition by W. A. Wright (Oxford: Oxford University Press, 1868).
2. Machiavelli, *Prince* 15, trans. Harvey C. Mansfield (Chicago: University of Chicago Press, 1985), 61.
3. *Advancement* 2.23.49; *Works* 3:475.
4. *Advancement* 2.21.9; *Works* 3:430.
5. Hobbes, as far as I can ascertain, never mentions Machiavelli, Descartes mentions him only in private letters, and Spinoza's reference is only in posthumous writings.
6. The principal "enlightenment" writings are the *Advancement of Learning*, the *Novum Organum* (1620), and *De Sapientia Veterum* (1609).
7. The principal writings that are clearly "imperialist" or "Machiavellian" or both are *Essays* 29, "Of the True Greatness of Kingdoms and Estates" (1626); the fragment, "Of the True Greatness of Britain" (1608); and the *History of Henry VII* (1622).
8. "Of the True Greatness of Kingdoms and Estates," "Of the True Greatness of Britain," and, for example, "Of Empire" and "Of Plantations."

9. Machiavelli, *Discourses on Livy* 2.5, trans. Harvey C. Mansfield and Nathan Tarcov (Chicago: University of Chicago Press, 1996), 138–40.

10. *Novum Organum* 1.80; *Works* 1:187; 4:78.

11. *Novum Organum* 1.80; *Works* 1:187; 4:78. See also *Novum Organum* 1.79 and 127; *Works* 1:219–20; 4:79, 112.

12. See the initial presentation of the distinction in *Novum Organum* 1.26, which prepares and governs the entire discussion of the "Idols" beginning with the thirty-ninth aphorism of Book 1.

13. Plan of the *Great Instauration*, *Works* 4:22, 28.

14. For a discussion of the difference between Baconian and ancient contemplation, see my "Bacon's Critique of Ancient Philosophy in *New Organon* 1," in *Nature and Scientific Method*, ed. Daniel O. Dahlstrom (Washington, DC: The Catholic University of America Press, 1991). [Reprinted herein. *Ed.*]

15. In the *Novum Organum* the Baconian statement closest to "knowledge is power" is "human knowledge and human power meet in one" (1.3; *Works* 1:157; 4:47). *Novum Organum* 2.4, which begins by saying "the roads to human power and to human knowledge lie close together and are nearly the same," explains why knowledge and power cannot be identical (Works 1:229; 4:120).

16. *Novum Organum* 1.48; *Works* 1:167; 4:57.

17. *Novum Organum* 1.49; *Works* 1:167; 4:57.

18. *Novum Organum* 1.48; *Works* 1:167; 4:57.

19. *Novum Organum* 1.79, 80, 127; *Works* 1:186–88, 219–20; 4:78–79, 112.

20. *Novum Organum* 1.129; *Works* 1:221; 4:113.

21. Machiavelli, *Discourses* 1, preface; Mansfield and Tarcov, 5.

22. *Advancement* 1.7.1; *Works* 3:301.

23. Machiavelli, *Prince* 6; Mansfield, 21–25.

24. *Advancement* 1.7.1; *Works* 3:301.

25. *Advancement* 1.7.1; *Works* 3:301.

26. *Novum Organum* 1.129; *Works* 1:221; 4:113.

27. "To invent is to discover that we know not," *De Augmentis* 5.3; *Works* 4:421.

28. *Novum Organum* 1.129; *Works* 1:221; 4:114.

29. *Novum Organum* 1.129; *Works* 1:221–22; 4:114.

30. *Novum Organum* 1.129; *Works* 1:221–22; 4:114.

31. *Novum Organum* 1.129; *Works* 1:221–22; 4:114.

32. *Novum Organum* 1.129; *Works* 1:223; 4:115.

33. See the introduction of acquisitiveness in *Prince* 3.

34. *Works* 3:147.

35. See especially Howard B. White, *Peace among the Willows* (The Hague: Martinus Nijhoff, 1968), 227: "Are the qualities required of a monarch and of monarchy in general transferred to others or do they merely cease to count in the perfect regime of Bensalem? . . . What appears most clearly . . . is that royal power has obviously given way in important respects to . . . other powers."

36. *Works* 3:148.

37. *Works* 3:149.

38. *Works* 3:151.

39. *Works* 3:142, 137.

40. *Works* 3:165. For an alternative view, according to which Joabin possesses a comprehensive wisdom, including both political science and the natural philosophy of Solomon's House, and is the supreme political authority of Bensalem, see J. Weinberger, introduction to his edition of *The Great Instauration and New Atlantis* (Arlington Heights, IL: AHM Publishers, 1980), especially 27–29.

41. *Works* 3:166.

42. See J. d'Alembert, *Discours préliminaire de l'Encyclopédie*, ed. L. Ducros (Paris: C. Delagrave, 1893), 98–101, "Pendant que des adversaires peu instruits ou malintentionnés faisaient ouvertement la guerre à la philosophie, elle se réfugiait, pour ainsi dire, dans les ouvrages de quelques grands hommes, qui . . . préparaient de loin dans l'ombre et le silence la lumière dont le monde devait être éclairé peu à peu et par degrés insensibles. A la tête de ces illustres personnages doit être placé l'immortel chancelier d'Angleterre, François Bacon."

43. Machiavelli, *Prince* 12; Mansfield, 48.

44. Machiavelli, *Prince* 6; Mansfield, 24.

45. Machiavelli, *Discourses* 1.6 (preface).

46. See especially Leo Strauss, *Thoughts on Machiavelli* (Glencoe, IL: Free Press, 1958), 168–73.

47. *Works* 6:403–4 (italics in original).

48. *Works* 6:404.

49. *Works* 6:403.

50. *Works* 6:404.

51. *Advancement* 1.8.6; *Works* 3:318.

52. *Works* 6:404.

53. See, for example, Hans Blumenberg, *The Legitimacy of the Modern Age*, trans. Robert M. Wallace (Cambridge, MA: MIT Press, 1983).

54. Preface to the *Great Instauration*; *Works* 4:20–21.

55. *Novum Organum* 1.80, 127; *Works* 1:188, 219–20; 4:79, 112.

56. *Works* 6:433.

57. *Advancement* 2.7.2; *Works* 3:353.

58. See *Novum Organum* 2.2: "It is this law, with its clauses, that I mean when I speak of Forms, a name which I the rather adopt because it has grown into use and become familiar" (*Works* 1:227; 4:120).

59. Plan of the *Great Instauration*, *Works* 4:22.

60. See, for example, Robert Faulkner, *Francis Bacon and the Project of Progress* (Lanham, MD: Rowman & Littlefield, 1993), 27ff.

61. Bacon published editions of the *Essays* in 1597, 1612, and 1625.

62. *Works* 6:471.

63. *Works* 6:470.

64. *Works* 6:469.

65. *Works* 6:514.

66. *Works* 6:514.

67. *Works* 6:514.

68. For charity, see the preface to the *Great Instauration*; for hope, see the section devoted to this theme, *Novum Organum* 1.92–104; for the trust or faith in the wager of the project of science, see especially *Novum Organum* 1.114.

69. *Works* 6:399.

70. Works 6:506.

71. *Works* 6:444, 445, 447.

72. *Works* 6:445.

73. *Works* 6:447.

74. *Works* 6:450.

75. *Works* 6:450.

76. *Works* 6:451, 452.

77. *Works* 6:449.

78. See Howard B. White, *Peace among the Willows*, 230: "Bacon could accept imperialism only if imperialism somehow led to something better than imperialism, that is, the utopia of the *New Atlantis*"; 249: "All that I can say with assurance is that, much as he regarded imperialism and the brave and warlike people as prerequisites to the relief of man's estate, the 'Sons of Peace' are possible only on the basis of universality, that is, a world state, for if Baconian science is right, it is right for all men and all time." White did not see that the absence of the normal world of independent nation states is the obstacle that imperialism alone can overcome, and that consequently world utopia is imposed by imperial power.

79. "Speech concerning General Naturalization [of the Scots]" (1607); *Works* 7: 39–40: "For greatness, Mr. Speaker, I think a man may speak it soberly and without bravery, that this kingdom of England, having Scotland united, Ireland reduced, the sea provinces of the Low Countries contracted, and shipping maintained, is one of the greatest monarchies, in forces truly esteemed, that hath been in the world. . . . Neither is the opinion of Machiavelli to be despised, who scorneth that proverb of state, taken first from a speech of Mucianus, that monies are the sinews of war; and saith 'There are no true sinews of war, but the very sinews of the arms of valiant men.'"

Chapter Five

Descartes's *Olympica*

The *Olympica*–Descartes's youthful account of dreams and their interpretations–is believed to be the one writing in which "the founder of modern rationalism" claims a divine inspiration for his philosophy. According to Gilson, "at least at the time of the *Olympica*, he places a certain inspiration at the origin of philosophy, a point to which Descartes never returned, neither to reaffirm it, nor to deny it." The "inspiration" in question is divine: "the sentiment experienced by Descartes that he was invested by God with the mission of constituting the body of the sciences and thus, as a consequence, to establish true wisdom."[1] The *Olympica* should therefore offer the strongest support of any Cartesian writing for the twentieth-century revision in the interpretation of Descartes. One is not facetious but merely precise in describing this revision as asserting that the reputed "founder of modern rationalism" was not himself a rationalist. The revision, inaugurated by Gilson's distinguished study of 1913, first fully presented by Gouhier, more recently described by Mme. Lewis, and constituting the central theme of Laporte,[2] is now almost generally taken for granted.

Of the manifold questions raised by this revision, the present essay limits itself to one cardinal point: its rejection of the widespread eighteenth- and nineteenth-century view that Descartes regarded unaided human reason as the sole authority for all opinion and belief whatever, including religious belief. The older "rationalist" view (as Gouhier described it), of which Adam supplied perhaps the last comprehensive statement,[3] had taken at face value statements like "Finally, whether we are awake, or whether we sleep, we ought never to let ourselves be persuaded except by the evidence of our reason" (*Discours*, 39). That Descartes often contradicted this and similar statements, explicitly and implicitly, was of course well known; but the rationalist historians did not

succeed in overcoming such contradictions in a coherent interpretation. Apparently liberated from the difficulties that perplexed the rationalists, the historians of our time generally seek to resolve those contradictions by denying that reason was the unique authority for Descartes in the sense mentioned. He rejected, they contend, not Scholasticism as a whole, but only or especially its philosophic or Aristotelian element; he was at one with the biblical faith of Thomas and Scholasticism. It is in essential dependence on this recent "Descartes research in France" that a German historian can now write "in reality the whole modern metaphysic derives from Christianity."[4]

1

No historian has ever–to my knowledge—offered a detailed interpretation of the *Olympica*, yet it is a primary source for the question of the rationalism of Descartes. It contains the first Cartesian references to "revelation and enthusiasm," to "the evil spirit" and "God" and a relation between them, to "the Church," to the "Spirit" of Descartes; and it offers as well a eulogy of poetry and imagination as superior to philosophy and reason. The original was headed by the phrases "November 10, 1619, completely filled with enthusiasm, having discovered the foundations of the miraculous science etc." (AT 10:179). Its date and its marvelous discovery link it with the day spent in the *poêle* in the winter of 1619 during which, according to the internal dates of the *Discourse*, Descartes discovered the foundations of his method. The *Olympica* thus offers the advantage of the "contemporary witness" of its author to the origins of Cartesianism; on the other hand, the *Discourse*, of 1637, is the only account, if a retrospective one, which Descartes ever published of those origins. Are the two accounts in accord? Neither the historians who, like Maritain, speak of the *Olympica* as showing the divinely inspired or revealed character of those origins, according to its author, nor those who speak of it as evidencing "a mystic crisis"[5] have succeeded in reconciling the *Olympica* with the *Discourse*, which is admittedly silent regarding both these types of origin.

Moreover, the judgments of all historians are almost exclusively based on the third dream and Descartes's interpretations thereof. They scarcely discuss, and they by no means explain, the relation of the preceding two dreams to the culminating one: they have not attempted to see the *Olympica* as a whole. It is even more striking that they ignore the remarkable fact that Descartes offered an interpretation of the third dream while still asleep, and then offered a waking interpretation that revises and even contradicts the sleeping one. In the latter, which contains the eulogy of poetry, Descartes understands the *Corpus poetarum* as "philosophy and wisdom joined together"; but in the

waking interpretation he understands it as "revelation and enthusiasm." One runs a certain risk in ignoring the distinctions between sleeping, dreaming, and waking, not least in the understanding of Descartes. The historians do not observe that he distinguishes between "dreams" and "visions"; they have left the pagan title without clarification; they speak of some one divine inspiration or revelation, whereas some five superhuman beings or agencies enter the *Olympica* account at critically different points, requiring discrimination and comparison. The *Olympica* therefore remains a mystery lying at the origins of modern philosophy.

The literary status of the *Olympica* by no means precludes detailed study. The original, comprising three dreams that presumably occurred during the night of November 10, 1619, and their author's interpretations, was never published by Descartes; perhaps unfinished, it was found among his posthumous papers, but is not now known to exist. In his *Vie de Descartes* (1691) Baillet gave a French summary some seven pages in length of a Latin manuscript twelve pages long. Hence it is not necessarily the case that Baillet abbreviated the original. In any event, his summary (quoted complete in AT 10:179–88) "includes circumstances so particular and details so singular that he does not seem to have invented anything" (editors' remark, AT 10:175). Baillet speaks of a single manuscript, but he also says there was "little order and connection in what composes these *Olympics* among the manuscripts" (AT 10:188). His straightforward and coherent summary can hardly fail to have come from a single original manuscript: it contains, and proceeds beyond, the last interpretation of dreams; the interpretations consider no detail not given in the dreams; and the dreams contain almost no detail not considered in the interpretations. The *Olympica* therefore constitutes a whole, if only a whole that was perhaps planned as preface or part of a larger work. From the analysis below it appears, moreover, that it was not intended merely as a private record.

An acceptable procedure of interpretation is needed to overcome the peculiar literary character of the *Olympica* as an account of dreams. There can be no disagreement with the assumption that we must in the first instance have recourse to Descartes's own stated interpretations: we must first understand his dreams exactly as he understood them himself, and postpone any twentieth-century "symbolic" interpretations until we learn if they are necessary or useful. As Maritain says, "The interpretation [by Descartes] obviously merits much greater attention than the dream itself" (*Dream*, 14). But Descartes offered three kinds of interpretations: a waking reflection or interpretation after each dream; a sleeping interpretation preceding the waking one of the third dream; and a reinterpretation of the first two dreams which augments and modifies the preceding ones.

Following Descartes, if not "good sense" as well, I shall in what follows permit waking interpretations to supersede sleeping ones, and the reinterpretations to qualify earlier ones. This procedure is especially demanded by one apparently unnoticed feature: whereas human beings appear in two dreams, none of the superhuman beings or agencies occurs in dreams or sleep, but only in Descartes's waking interpretations. This feature will prove indispensable to the clarification of the title, which is never mentioned within the work. "Olympica" must refer to the sacred mountain of the pagan gods, or more precisely to the pagan gods or things of that mountain. The title is nevertheless obscure, since no conspicuously pagan divinity is mentioned, but only a pagan poet and a pagan philosopher.

Led by Descartes's own interpretations we can quickly see the immediate evidence for the intelligibility of the *Olympica*: the three dreams possess a structure. Two frightful ("terrifying") dreams or nightmares, a long then a short, were followed by a culminating, peaceful third: the final prophetic dream contained nothing not "most sweet" and "most agreeable." The *Olympica* has therefore the character of an ascent. The clue to the possibility of ascent should lie at the juncture of the fearful dreams and the calm prophetic one, that is, in the waking interpretation following the second dream. Precisely here Descartes first mentions "philosophy" or "reasons taken from philosophy": he begins to philosophize.

Further remarks will be based on Baillet's summary. Its whole text (in my translation) is presented here, divided into parts.

2

FIRST DREAM. "He informs us [in margin: CART. OLYMP. init. MS.] that, on the tenth of November 1619, having gone to bed 'completely filled with enthusiasm' and wholly occupied with the thought 'of having discovered that very day the foundations of the miraculous science,' he had three consecutive dreams in a single night that he imagined could only have come from on high. After having gone to sleep, his imagination was struck by the representation of certain phantoms which presented themselves to him, and which frightened him in such a way that, believing that he was walking up the street [in margin: CART. OLYMP.], he was obliged to fall back onto the left side in order to be able to advance to the place where he wished to go, because he felt a great feebleness on the right side, which he could not sustain. Being ashamed of walking in this manner, he made an effort to straighten up; but he felt a violent wind which, carrying him off in a kind of vortex, caused him to spin three or four times on the left foot. This was still not what frightened him. The difficulty that he had in dragging himself along made him believe that he would fall at every step until, perceiv-

yet answered; or, more precisely, that it has not been answered by the religious beliefs implied in Descartes's fears of divine punishment.

THIRD DREAM. "A moment after, he had a third dream, which had nothing terrifying, as had the first two. In this [last] one, he found a book on the table, without knowing who had put it there. He opened it, and seeing that it was a *Dictionary* was delighted with it, in the expectation that it could be most useful to him. In the same instant he discovered another book at hand, which was not less new to him, not knowing where it had come from. He found that it was a collection of poems by different authors, entitled *Corpus poetarum* etc. [in margin: divided into five books, printed at Lyons and at Geneva, etc.]. He had the curiosity to wish to read something: and upon opening the book he fell on the verse 'What way of life ought I to follow?' [*Quod vitae sectabor iter?*]. At the same moment he saw a man he did not know, but who presented to him a piece of verse, beginning with 'Yes and No' [*Est et Non*], and praised it to him as an excellent piece. M. Descartes told him that he knew which it was, and that this piece was among the *Idyllia* of Ausonius, which were found in the large collection of poets on his table. He wished to show it himself to this man, and began to leaf through the volume, of which he claimed to know the order and arrangement perfectly. While he was looking for the place, the man asked him where he had got the book, and M. Descartes replied to him that he could not say how he had; but that a moment previously he had handled still another, which had just disappeared, without knowing who had brought it to him or who had taken it away from him. He had not finished when he again saw the book appear at the other end of the table. But he found that this *Dictionary* was no longer complete, as he had seen it the first time. Meanwhile he came to the poems of Ausonius in the collection of poets that he was leafing through; and not being able to find the piece which began with *Est et Non*, he said to the man that he knew one by the same poet still more beautiful than that one, and that it began with *Quod vitae sectabor iter?* The person requested him to show it to him, and M. Descartes set about finding it, when he chanced on several small engraved portraits: which made him say that this book was extremely beautiful, but that it was not of the same edition as that which he knew. He was at this point when the books and the man disappeared and effaced themselves from his imagination, without, however, awakening him. What is remarkable is that, doubting whether what he had just seen was dream or vision, he not only decided, while sleeping, that it was a dream, but he even made the interpretation of it before sleep left him. He judged that the *Dictionary* meant no other thing but all the sciences gathered together; and the collection of poems, entitled *Corpus poetarum*, indicated in particular, and in a more distinct manner, philosophy and wisdom joined together. For he did not believe that one should be greatly astonished to see that the poets, even those who only play the fool, were full of sentences more grave, more sensible, and better expressed than those which are found in the writings of the philosophers. He attributed this marvel to the divinity of enthusiasm and to the force of imagination, which thrusts out the seeds of wisdom (which are found in the mind [*l'esprit*] of all men, like sparks of fire in stones) with much more facility, and even much more brilliance, than reason can do in the

"Terror" is caused by "a sharp and piercing sound" that he interprets in the dream as "a clap of thunder." In the later reinterpretation he will refer to the piercing sound as *la foudre*: a *foudre du ciel* has indeed befallen him. (Moreover, the "many sparks of fire," taken with the thunder, suggest lightning, another and familiar meaning of *foudre*.) Just as his reflection on his first dream led to fear of *foudres du ciel*, so *foudres* of a kind occur in the subsequent dream. This connection of his second dream with the preceding reflection is not stated by Descartes. His silence compels us to reflect on its meaning.

In his later reinterpretation of the second dream he is silent with regard to his recourse to philosophy; in his present interpretation he is silent regarding the "remorse of his conscience," which will appear only in the later reinterpretation as the cause of the dream's fearful character. Only by putting together what Descartes has left asunder do we see that the fears of conscience are dissipated by philosophic reasoning, leading to calm. We are forced to wonder whether these silences are deliberate, or, more exactly, whether the *Olympica* is a conscious construction. Whereas he had assigned a cause for his first nightmare, he is silent regarding the cause of the second. He compels us to seek the connection between the preceding fears and *foudres* and those of the second dream, and to trace the latter to the cause made explicit only in the preceding reflection: his fear of divine punishment.

Yet it would be imprecise to speak of the second dream as simply dependent on—as a fulfillment of, as it were—his first reflection. The *foudres* that were feared are not identical with those that occur: the feared *foudres* were divine punishments, but those now experienced are a sound and sights, that is, natural phenomena. We should err in taking this discrepancy simply as a stroke of unconscious wit, for it conceals a serious question: do his fears have a natural origin? Analogously, since the *foudre* is fearful only as interpreted by him while asleep, do his fears originate in himself? What he explicitly reasons about here is the "sparks of fire," finding their delusive character due to the state of his body on waking. Only in the reinterpretation will he enlighten what is here left implicit.

Thus at present we may merely note that all that intervenes between "terror" and "calm," and must therefore be regarded as the sole explanation of the "calm," is Descartes's action in resorting to "reasons taken from philosophy." Hence calm must be the result of discovering the power of reason. The significance of philosophy and the dependence of the next dream on this reflection soon appear: in the third dream philosophy is mentioned during sleep for the first time. We must not exaggerate, however, the scope of Descartes's present turning to philosophy, for the decisive question, "What way of life ought I to follow?" has not yet been asked, and it will be asked within the next dream only by a poet. The posing of the question clearly implies that it is not

ing a college open on his way, he entered within in order to find a retreat there, and a remedy for his trouble. He tried to gain the church of the college, where his first thought was to go to make his prayers; but perceiving that he had passed a man of his acquaintance without greeting him, he wished to retrace his steps to be civil to him, and was repelled with violence by the wind which blew against the church. At the same time he saw another person in the middle of the college courtyard who called him by his name in civil and obliging terms, and told him that if he wished to go find Monsieur N., he had something to give him. M. Descartes imagined that this was a melon that had been brought from some foreign country. But what surprised him more was to see that those who gathered with this person, around him in order to converse, were erect and firm on their feet, although he remained bent and wavering on the same terrain, and that the wind which he thought would upset him several times had greatly diminished. He awoke on this imagination, and felt at the time an actual pain, which made him fear that this was the operation of some evil spirit who wanted to [trick] him. He immediately turned over on his right side; for it was on the left that he had gone to sleep and had had the dream. He prayed to God to ask to be guaranteed from the bad effect of his dream, and to be preserved from all the misfortunes that could threaten him as punishment for his sins, which he recognized could be grave enough to draw down the thunders of heaven [*foudres du ciel*] on his head: although he had led up till then a life sufficiently irreproachable in the eyes of men."

Descartes does not interpret the content of the first dream; this he postpones to his reinterpretation. His comment here is not on the dream but on "an actual pain" felt on waking, apparently on his left side. He deals with the pain in two ways. He first turns over on his right side, and then he begins to think on "the evil spirit" to which he attributes the pain. In this amazing manner the renowned evil spirit, absent from the dream, makes its entrance in Descartes's and therewith modern philosophy. The peculiarity of its debut is that it appears as the conclusion of a leap in inference. As is well known, the *Discourse*, with which Descartes made his appearance in public, opens with a fallacy, if a visibly ironic one. In regard to this first dream the fallacy is compound: a bodily pain is somehow attributed to an evil spirit; no connection of pain and dream has been shown, but the "bad effect" of the entire dream is now attributed to the evil spirit. If we plead on Descartes's behalf that a man is not at his best at such moments, we are forced in all consistency to apply this judgment to the meditation and prayer that follow.

Thus faced with an irrational belief in evil spirits on the part of "the founder of modern rationalism," we can only follow his remarks with scrupulous care, hoping that they will disclose signs of his reputed genius. The context of the evil spirit is clearly theological, for the link between the evil spirit and "God" is "his sins": he can be preserved from the evil spirit if God will

preserve him from "punishment for his sins." His sins, then, not the evil spirit, are the cause of the first nightmare. This, however, only renders puzzling why the evil spirit deserves his evil name: does he not perform the salutary task of reminding Descartes of his sins? Does he not in effect send Descartes to prayer? Moreover, Descartes's admission of his sins is not free of ambiguity, for he claims to have led "a life sufficiently irreproachable in the eyes of men." The cause of his first nightmare is in fact, then, his fearful belief in his possible secret sins. This belief no doubt derives from his ultimate assumption [of] or belief in a God who knows one's secret sins.

The distinction here suggested between the knowledge of "men" and that of "God" will prove to adumbrate the problem of the *Olympica*. In this context the *foudres du ciel* he seeks to avoid are a metaphor for divine punishments. In the second dream *foudres du ciel* do in fact befall him, but not in the form of divine punishments.

> SECOND DREAM. "In this situation he went back to sleep after an interval of almost two hours in various thoughts on the goods and evils of this world. A new dream immediately occurred to him, in which he believed he heard a sharp and piercing sound that he took for a clap of thunder [*un coup de tonnerre*]. The terror it caused awoke him that very moment; and having opened his eyes he saw many sparks [*étincelles*] of fire scattered about the room. The thing had often occurred before, at other times; and it was not especially extraordinary, upon waking in the middle of the night, for his eyes to be so besparkled [*étincelants*] that he saw confusedly the objects closest to him. But on this [last] occasion he sought recourse to reasons taken from philosophy; and he drew therefrom conclusions favorable to his mind, after having observed, upon opening and then closing his eyes alternately, the quality of the appearances [*espèces*] represented to him. Thus his terror dissipated, and he went back to sleep in a very great calm."

Unlike the first dream, the fearful character of which is preserved if not enhanced in the subsequent reflection, the second leads not to fear and to prayer but to philosophy and "a very great calm." It is the first turning point of the *Olympica*. We must try to understand why this is the case. For some two hours Descartes has meditated "on the goods and evils of this world," and previously he had prayed to God to preserve him from his fears, or from the *foudres du ciel*, which would justly punish his secret sins. Nevertheless, he now has another dream characterized by "terror." His second nightmare thus indicates that his prayer to be "preserved from all the misfortunes that could threaten him" has apparently been unfulfilled. Descartes does not, however, renew his prayer: herein is the obscurity of this dream's interpretation, requiring our utmost scrutiny.

philosophers. M. Descartes, continuing to interpret his dream in his sleep, considered that the piece of verse on the uncertainty of the kind of life one ought to choose, which begins by *Quod vitae sectabor iter?*, indicated the good counsel of a wise person, or even moral theology.

"Thereupon, doubting whether he dreamed or meditated, he awoke without emotion, and continued, with open eyes, the interpretation of his dream on the same idea. By the poets gathered in the collection he understood revelation and enthusiasm, of which he did not despair to see himself favored. By the piece of verse *Est et Non*, which is the *Yes and No* of Pythagoras [in margin: *nai kai ou*], he understood truth and falsity in the human knowledges [*connaissances*] and the profane sciences. Seeing that the application of all these things succeeded so well to his taste, he was so bold as to persuade himself that it was the Spirit of Truth who had sought to open to him the treasures of all the sciences by this dream. And as there remained nothing more to explain but the small engraved portraits that he had found in the second book, he searched no more for the explanation after the visit an Italian painter made to him the next day."

To understand the third dream we must follow its content through three phases: the dream proper; the sleeping interpretation; the waking interpretation. Both transition points are underscored by an explicit act of doubt. The dream content turns chiefly about three things: the *Dictionary*; the piece of verse *Quod vitae sectabor iter?*; and the piece of verse *Est et Non*. Each of the three, and only these, signifies in a comprehensive manner, in the interpretations, certain studies or disciplines.

We now come to clear evidence of an orderly ascent within the *Olympica*. The significance of the three things is exactly graduated by their order of appearance and by their corresponding treatment in each of the three phases. In the sleeping interpretation, the first thing (the *Dictionary*) is inferior to the second (*Quod iter?*), while the third (*Est et Non*) is absent. In the waking interpretation, the first drops out, the meaning of the second is drastically revised, while the third becomes the most significant. To put it differently, this graduation shows that the poetic rivalry of the two pieces of verse leads to the ascendancy of the second comprehensive symbol (*Quod iter?*) in the second phase, but of the third such symbol (*Est et Non*) in the third phase. The significance of the graduation is confirmed by a small detail: the mitigation of the *Dictionary* begins in the dream proper.

3

The three comprehensive symbols of the third dream, and its three phases, require detailed examination, but this must be prefaced by an essential observation—for when we conjoin the evidences of a most articulate ascent in the

treatment of this dream with the earlier indications of an orderly relation among the dreams, we are drawn to reexamine the customary assumption regarding the literary character of the *Olympica*. Is it, as usually assumed, a record of actual dreams of the "historical" Descartes? Or is it a conscious and deliberate construction?

If we believe it a record of actual dreams we must accept the veracity of two remarkable features. The first is that Descartes claims to interpret the third dream while still asleep. One might demur that it is being only too "Cartesian" to find this remarkable: is it not precisely the Cartesian tradition that has, so unsuccessfully, restricted the activity of mind to waking consciousness? Without dealing with this question, let us proceed to a reformulation of the point: what is remarkable is that the sleeping interpretation should fit so aptly, should occupy such a precisely graduated intermediate phase, between the dream proper and the waking interpretation. The second remarkable feature–though here we must anticipate–is that Descartes's own "Spirit" will be said to have predicted the dreams before Descartes went to bed: can we safely assume this marvelous report to be free of irony? In the face of these wonders it would be arbitrary to assume, as is the custom, that the *Olympica* comprises actual dreams.

If, on the contrary, we suppose that Descartes took a "poetic" approach to rhetoric, and hypothesize that the *Olympica* belongs to an old tradition, of which Cicero's Scipionic dream is the most famous example, we can find abundant support in Descartes's writings. In the *Regulae* he discusses at length the concealing devices of ancient rhetoric, first attacking the vanity of the ancient practice and then acknowledging that he will employ such devices, if in a novel manner (AT 10:366–67, 373–74). The *Discourse* is presented by Descartes "as a history, or, if you prefer, as a fable" (*Discours*, 4). This duality of literary form, which governs the entire *Discourse*, culminates in the "fable of the world," of *Discourse* 5. As Gilson has observed, Descartes here begins with "a chaos as confused as the poets can imagine": he presents (*Discours,* 42ff.) a poetic account of his scientific cosmogony, after the fashion of Lucretius, because that cosmogony is "in open contradiction with the account of the creation that the Bible proposes." Descartes sought, according to Gilson, to avoid interpreting "the biblical text allegorically"; he hoped to reconcile his cosmogony with "the letter of the sacred text," but "he ultimately abandoned" the effort (*Discours*, 379ff., 383). Furthermore, in his earlier writing, *Le Monde* (suppressed by Descartes because of Galileo's condemnation), at a point that is parallel to *Discourse* 5, he presents his scientific cosmogony as "a fable, through which I hope that the truth will not fail to appear sufficiently, and that it will not be less agreeable to see than if I exposed it completely naked" (AT 11:31).

These cursory evidences of Descartes's numerous borrowings from the ancient practice of using "poetic" rhetoric as a way of presenting controversial views of received theology,[6] together with the signs of a carefully articulated "ascent" within the *Olympica*, compel us to consider the possibility that the work's every feature, dream as well as interpretation, is consciously intended. The *Olympica* would then be a deliberate, "poetic" construction, whose meaning is disclosed only to careful study—even if it was occasioned by actual dreams. Indeed, without such a supposition how could we account for the poetic title supplied only by the waking Descartes?

Returning to the three comprehensive symbols of the third dream, the first to appear, the *Dictionary*, disappears after the introduction of the two pieces of poetry, and though it reappears it is then "no longer complete"; it is somehow depreciated by the entrance of poetry. In the sleeping interpretation it signifies "all the sciences gathered together," and is thus inferior to poetry, which signifies "philosophy and wisdom joined together," for Descartes does not equate these seemingly all-inclusive knowledges. Moreover, the sleeping interpretation proceeds to stress the superiority of imagination to reason: the poetic use of words is their supreme use. The status given the *Dictionary* in the sleeping interpretation disappears in the waking one, where it is not even mentioned. Its place is taken by the *Est et Non*, which signifies "the profane sciences."

A kindred fate, however, befalls poetry, which is drastically revised in the waking view and is also replaced by the *Est et Non*. Since both *Dictionary* and *Corpus poetarum* imply the use of words or speech, and both yield to the *Est et Non* of Pythagoras, the pagan exponent of mathematical philosophy, we can legitimately conclude that words or speech as the element of knowledge will be replaced by the objects of mathematics. The *Olympica* is silent regarding mathematics, but the conclusion drawn is the only one that accords with the suppression of the *Dictionary* and the emergence of the figure of Pythagoras. The significance of mathematics for Descartes in 1619 is amply corroborated by the *Discourse* account of that year, and by the opinions of historians regarding the meaning of the "miraculous science" referred to in the heading of the *Olympica*.

The tension between poetry and "Pythagoras" begins in the dream proper. At the same moment his eye falls on the *Quod iter?* piece, the stranger presents the *Est et Non*. The two pieces of verse, but also their protagonists, the dreaming Descartes and what we may call the Pythagorean stranger, become rivals. The stranger urges attention to *Est et Non*, Descartes to the claims of *Quod vitae sectabor iter?* To Descartes the *Quod iter?* piece, the poetic question, is "still more beautiful" than the phrase that separates and divides. The stranger poses questions, just as *Est et Non* implies alternatives, and the

dreaming Descartes attempts but fails to answer the questions. The stranger asks where the "collection of poets" came from; Descartes knows its "order and arrangement" but not its origin. The dreaming Descartes cannot find the *Est et Non* piece, or is diverted by the small engraved portraits. He knows that it was written by Ausonius, but not that it was inspired by Pythagoras. He does not mention Pythagoras in the dream or in the sleeping interpretation. To him, the *Est et Non* is poetry, and he is ignorant of its philosophic source. Accordingly, the sleeping interpretation is silent regarding the *Est et Non* as well as the Pythagorean stranger. The only human named in the dream is a poet, Ausonius; the only human named at any time by the waking Descartes is a philosopher, Pythagoras. Poetry is linked with dreaming and sleep, philosophy with awakeness. Only the waking Descartes will see that in the *Est et Non* lies the way to answer the *Quod iter?* question.

The significance of Pythagoras is confirmed by turning to the *Idyllia* of Ausonius, to which Descartes has referred. The *Quod vitae sectabor iter?*, which has primacy for the sleeping Descartes, is the opening question of the 15th *Idyllium*, entitled "On the Uncertainty of Choosing a [way of] Life—from the Greek of Pythagoras." The *Est et Non*, which is primary for the waking Descartes, is the first phrase of the 17th *Idyllium*, entitled "The Pythagorean 'Yes and No.'" Moreover, the intervening 16th *Idyllium* bears the title "On the Good Man—Pythagorean Declaration." Only these three of the whole of Ausonius's *Idyllia* refer to Pythagoras in the title; apart from these three, the only allusion to Pythagoras may refer to the center *Idyllium* of this group.[7] Hence the two pieces of verse Descartes quotes in the third dream point to the first and last *Idyllia* of, or mark off, the exclusively Pythagorean subsection. Any hesitation about including the middle 16th *Idyllium* is removed by its theme: it treats of the reflection a "good and wise man" makes concerning his deeds at the end of each day before enjoying a "sweet sleep."

The amazing fashion in which the two quoted pieces of verse silently enclose the 16th, which states Descartes's own problem, requires us to examine the Pythagorean *Idyllia* more carefully. The movement from the 15th to the 17th parallels that of the dreams, from the fearful to the calm. In the 15th the opening question (*Quod vitae sectabor iter?*) is followed by a roster of the miseries of man, and the extreme of misery is found not at the end but in the middle: the gods have unjustly given to miserable man the gift of immortality—unjustly because it promises only their immortal misery. Belief in gods does not entail belief in the benevolence of gods, not even of Jupiter; malevolent gods jeopardize the happiness of man. Suggestive as these details are of the "evil spirit" of Descartes, we cannot of course be certain that he meant to allude to them. The opening *Quod iter?* question of the 15th *Idyllium* finds no answer therein, unless we consider death the answer supplied by its conclud-

ing "most excellent maxim": "for man it is good not to be born, or born, speedily to possess death." In any event the middle of the *Idyllium* contradicts its conclusion, for death is no escape from misery if man is condemned to an immortality of misery. This *Idyllium* supplies, however, a "poetic" answer to a Pythagorean question: we may reasonably suppose Ausonius to have known that the source of the "most excellent maxim" is Greek tragedy.

In the 16th *Idyllium* the poetic or tragic answer is replaced by a philosophic answer, and misery vanishes. Its theme is "the good and wise man," of whom a god, Apollo, is the example, who rejects the opinion of the great and the vulgar; he rejects the tragic view of life altogether. Apollo examines himself and all things; he philosophizes, calming his soul, in the most human manner ("not closing his eyes in sweet sleep before he has meditated on all the acts of the long day")—just as Descartes does after the middle dream. (Descartes later used "Apollo" to signify clarity.)[8]

In the 17th *Idyllium* the *Est et Non* of the Pythagoreans, implying affirmation and denial—the conversation and dispute required for the discovery of truth and falsity—is the source of the "dialectical hubbub of the wise." Thus Ausonius's Pythagorean subsection "ascends" from the question of man's right life (15th) to goodness understood as self-knowledge (16th) to dialectical inquiry into the truth of all things (17th). The "ascent" is mirrored in the titles: that of the 15th is given wholly in Latin despite its content ("from the Greek of Pythagoras"); that of the 16th is partly in Latin and partly in Greek; and that of the 17th is wholly in Greek. But Ausonius appears to mock the wise in his ironic imitation of dialectic, in the 17th. Punning on *dies*, he writes: "Is it clear [*dies*]? It is day [*dies*]!" He seems to prefer the literal or, rather, sensible "day" to the clarity of philosophic dialectic.

As for Ausonius's ultimate intention, we must limit ourselves here to noting that, according to Bayle, it cannot be established without paying due attention to the "disgraces and persecution" to which "paganism"—and therefore Pythagoreanism—was exposed in his day.[9] And since we cannot be sure to what extent Descartes wished to draw our attention to the details of the *Idyllia*, let us return to the safer terrain of the *Olympica*. The massive import of his references to the poetry of Ausonius is simply Pythagoras and philosophy.

The sleeping Descartes who is unaware of "Pythagoras" can praise poetry at the expense of reason—can indeed offer perhaps the highest praise bestowed on poetry by a philosopher. Yet it is a sleeping eulogy, and hence we cannot follow Gilson in drawing a contrast between this 1619 eulogy and the 1637 depreciation of poetry in the *Discourse* (*Discours*, 7, and Gilson's commentary thereto, 124). The presence of a sleeping interpretation was sufficient to awaken the curiosity of Baillet ("what is remarkable"). The nondreaming

but sleeping Descartes doubts—for the first time explicitly—whether he had seen "dream" or "vision"; the waking Descartes will confirm the judgment that it was indeed "dream." But the sleeping Descartes does not distinguish or separate, or not immediately, sleeping and waking. Only later, after the eulogy of poetry and immediately after he has understood the *Quod iter?* piece to mean "the good counsel of a wise person" (presumably the poet Ausonius), "or even moral theology," does he doubt "whether he dreamed or meditated," and, upon doubting, awaken.

The sleeping Descartes refers to the superiority of "the poets" to "the philosophers" as "this marvel." The marvel has two causes: "the divinity of enthusiasm" and "the force of imagination," which produces "the seeds of wisdom" in poetry "with much more facility, and even much more brilliance, than reason can do in the philosophers." The poets thereby are "full of sentences more grave, more sensible, and better expressed" than those of the philosophers. Both poets and philosophers supply "sentences": their knowledge is verbal, and hence both are dependent on the *Dictionary*. But the poetic use of words is superior to their philosophic use. The poetic "seeds of wisdom" are separate and unconnected, like "sparks of fire" struck from "stones": the origin of poetry is as marvelous as it is obscure. The "sparks of fire" seen after the second dream were illusory and were dispelled by "reasons taken from philosophy"; the "sparks" mentioned in this dream will be understood only upon waking—as part of the reinterpretation of poetry.

However, a careful examination of this sleeping interpretation indicates why Descartes will revise his view of poetry in the third phase, the waking interpretation, which follows. The excellent poetic "sentences" are said to be found even in poets "who only play the fool": the poet is merely the vehicle of random poetic fire. In fact, his "seeds of wisdom" are "found in the minds of all men, like sparks of fire in stones." His wisdom is thus unwitting, for it is interspersed with foolishness; it is unrelated to his quality as poet, for as poet he may be inferior. Interspersal of wisdom and foolishness means that the wisdom of the poets does not form a connected account. One thereby understands how the *Discourse* can speak of poetry as "gift of mind" rather than "fruit of study," and why Descartes says at its close that "I desire for my judges" those "who join good sense with study" (*Discours*, 7, 77). The opposition of poetry and knowledge was made still more explicit by Descartes in a letter of 1649: poetry is the gift of a troubled mind, specifically of illness, and generally of "a strong agitation of the animal spirits," which can, however, be opposed by firmness of mind; hence Socrates desired to write poetry in prison as death approached (AT 5:281). Yet to the sleeping Descartes of the *Olympica* the *Corpus poetarum* signifies "philosophy and wisdom joined together." The sleeping account leaves this signification inexplicable, for it has

made wisdom the product of imagination and divine enthusiasm; more precisely, it has separated "reason" from "wisdom."

The distinctness of the third phase, the waking interpretation, is somewhat blurred because this account is presented as a continuation ("he awoke without emotion, and continued . . . on the same idea"). Yet Descartes now immediately reinterprets the *Corpus poetarum* as "revelation and enthusiasm"; and not poetry but only the Pythagorean *Est et Non* signifies "truth and falsity in the human knowledges and the profane sciences." The bold coupling of revelation and enthusiasm, and the understanding of both as significations of poetry—of poetry written by mortals—has gone unremarked.

It might be thought that this interpretation of the *Corpus poetarum* does not depart from the sleeping view of the *Quod iter?* piece as "moral theology." (Incidentally, it is hardly possible to understand how a question alone can signify moral theology unless we believe that Descartes, by means of the *Quod iter?*, is pointing to the 15th *Idyllium*, and to the problem inherent in its theological view.) And it is true that in the waking view Descartes preserves the connection between poetry and theology, revelation, and divinity. But he now separates the divine from the "human knowledges." Whereas the sleeping view understands poetry as a whole (the *Corpus poetarum*) as "philosophy and wisdom joined together," the waking view separates poetry as a whole—and thereby that for which poetry now stands, revelation and enthusiasm as a whole—from human knowledge. Similarly, in the *Discourse*, "revealed truths . . . are above our intelligence" (*Discours*, 8), and are therefore separate from human knowledge. Yet the *Discourse*, as well as other Cartesian writings, presents what has been called by scholars, though never by Descartes,[10] a "theology" or a "rational theology," whereas the *Olympica* by no sign or statement suggests the possibility of "rational theology."

The separation of poetry from human knowledge coincides with, if it is not indeed a result of, the rise to primacy of *Est et Non*, "truth and falsity," or clear distinctions. We may suppose that by "revelation and enthusiasm" Descartes means two things. He does not, however, add "joined together" as he does with "philosophy and wisdom"; one thing, poetry, stands for both, and Descartes can speak of "the divinity of enthusiasm" in accordance with the etymological roots of "enthusiasm." The "enthusiasm" of the phrase "revelation and enthusiasm" is one of two species in the *Olympica*. It cannot be identified with the enthusiasm of scientific discovery, mentioned in the original Latin heading of the *Olympica*. Of the former he says "he did not despair to see himself favored"; he has not as yet received "revelation and enthusiasm," nor is it said to be received in the *Olympica* writing. Descartes's treatment of "revelation and enthusiasm" is thus consistent with the more extensive ones of Locke and Leibniz.[11]

4

The distinction between "poetic" enthusiasm and the enthusiasm of science can only partly be clarified within the *Olympica*. That between poetry and philosophy—the new philosophy whose model is mathematics—turns on their diverse relations to imagination and reason. The kinship between poetry and dreaming lies in their common use of imagination separate from reason. Hence sleep, in which reason is quiescent, can be Descartes's "poetic" metaphor for poetry. The first dream begins with "his imagination was struck"; it concludes with "he awoke on this imagination." In the final dream, in which poetry is an explicit theme, the images appear and disappear as if by magic; the dream is interpreted before the images "effaced themselves from his imagination." In the second dream the piercing sound is immediately supplied an image (thunder) by the sleeping Descartes. During sleep the imagination, or more precisely the body, predominates. In the first dream Descartes slept on his left side, in the second probably on his right, but as regards the calm dream we have no indication of the side. Since he gazes about the chamber during his optical experiment immediately preceding that final dream, he may then be on his back; in any event the body is subordinate but not absent. The "sparks of fire" of the second dream were caused by his bodily state during the process of awakening; those of the third dream belong to the sleeping interpretation. These latter poetic "sparks of fire" are products of the imagination; they remain therefore in the domain of the bodily.

Descartes later wrote that "the imagination . . . is no other thing but a certain application of the faculty which knows to the body which is intimately present to it" (AT 9–1:57). There is no doubt that this distinction raises the familiar problem of Descartes's "dualism." Yet Descartes, from the *Regulae* through the published writings, asserts the autonomy and separateness of the essential activity of "the faculty which knows" (the *intellectus purus*) from dependence on the presence of images (*phantasmata*) or activity of imagination. Precisely on this point he opposed the Aristotelian doctrine of abstraction.[12] It is the distinguishing capacity of reason, signified by the *Est et Non*, possible only in awakeness, which is peculiarly impossible to imagination or in sleep. In sleep the imagination did not distinguish between wisdom, poetry, and "moral theology"; awake the *Est et Non* separates the latter two from human knowledge.

Just as the wax of *Meditations* 2, and figure or body in general, are not knowable by means of imagination, but only by reason independently of it and all images, so "this power of imagining which is in me, insofar as it differs from the power of conception, is in no part necessary to my nature or to my essence, that is to say, to the essence of my mind" (AT 9–1:58). Descartes

claims thereby to assert a new view of human identity, the ego whose thinking is purified of everything "poetic" or imaginative. His mature view is already implicit in the *Olympica*. Moreover, when we realize that the *images* struck from "stones" are themselves *words*—the "seeds of wisdom" of the poetic sentences—we see that he has here already at least adumbrated his dual charge against poetry and the "poetic" philosophic tradition. He charges them with failure to liberate thought from its customary dependence on words or speech (including opinion) and on imagination or the body (compare especially *Principles* 1.71–74).

By the movement from the pagan poet Ausonius to the pagan philosopher Pythagoras we arrive at the only possible explanation of the pagan title: the *Olympica* is a pagan ascent. The waking interpretation, however, culminates not in Pythagoras but in the truth of Pythagoras, or "the Spirit of Truth," which is not pagan but universal. Paganism as a belief in the Olympian deities was a particular form of piety; the ascent goes beyond the title and beyond all piety. Nowhere in the *Olympica* is "the Spirit of Truth" related to "revelation and enthusiasm" or any deity. In turning now to its reinterpretation of the fearful dreams we would only obscure the true "peak" of the *Olympica* if we made the descent without retaining the distinction Descartes has drawn between human knowledge and everything "poetic."

> "This last dream, which contained nothing which was not most sweet and most agreeable, signified the future according to him; and was only that which should occur to him during the rest of his life. But he took the two preceding ones for threatening warnings concerning his past life, which could not have been as innocent before God as before men. And he believed that this was the reason for the terror and the fright with which these two dreams were accompanied. The melon, of which someone wished to make him a present in the first dream, signified, he said, the charms of solitude, but presented by purely human solicitations. The wind which pushed him toward the church of the college, when he was having difficulty on the right side, was nothing but the evil spirit which tried to throw him by force into a place where it was his purpose to go voluntarily.
>
> "[In margin: I was driven by an evil spirit to the temple (*A malo Spiritu ad templum propellebar*).]
>
> "That is why God did not permit him to advance further, and let him be carried off, even into a holy place, by a spirit that he had not sent: although he was very persuaded that it had been the Spirit of God who had made him take the first steps toward that church. The fear by which he was stricken in the second dream indicated, in his opinion, his conscience [*syndérèse*], that is to say, the remorse of his conscience [*conscience*] concerning the sins that he could have committed during the course of his life up to then. The clap of thunder [*foudre*] that he had heard was the signal of the Spirit of Truth which descended on him to possess him.

"This last imagination assuredly contained something of enthusiasm; and it disposes us easily to believe that M. Descartes had drunk that night, before going to bed. Indeed it was the eve of St. Martin, the evening when one customarily makes a debauch wherever one is, as in France. But he assures us that he had passed the evening and the whole day in great sobriety, and that it had been three whole months since he had drunk wine. He adds that the Spirit [*Génie*] who excited in him the enthusiasm with which he had felt his brain heated for several days had predicted these dreams before he lay down on his bed, and that the human mind had no part in them.

"However this may be, the impression which remained to him from these agitations caused him to make various reflections the next day on the course that he ought to take. The perplexity in which he found himself caused him to turn to God in order to ask that he make known his will, to clarify it, and to conduct him in the search for truth. Afterward he addressed himself to the Holy Virgin, to commend this matter to her, which he judged the most important of his life. And in order to interest the most blessed Mother of God in the most urgent manner, he took the occasion of the voyage that he contemplated making into Italy in a few days, to form the vow of a pilgrimage to Our Lady of Loretto. [In margin: OLYMPIC. CARTES., as above]."

This concluding section of the *Olympica* comprises: the contrast between the "future" promised by the third dream and the fearful character of the preceding ones; reinterpretation of the first dream; reinterpretation of the second dream; remarks on the occasion of the dreams and their prophecy, by Descartes's own "Spirit"; and the vow to make a pilgrimage to Our Lady of Loretto. The problem of the conclusion is the relation of "the Spirit of Truth," and its prophetic promise of "the treasures of all the sciences," to the "evil spirit," "God," and "the Spirit of God" whom Descartes considers upon returning to the fearful dreams. After clarifying this relation we can approach Descartes's own prophetic "Spirit."

5

From the "peak" of the third dream Descartes descends to reconsider the earlier nightmares. The first dreams he regards as God's warnings regarding his past life; the final dream, which contained only the "most sweet and most agreeable," indicated the future. Hence the future will be free from God's threatening warnings and their fear and terror. How is this to be possible? The whole meaning of the *Olympica* turns on the manner in which we answer this question.

We may answer that Descartes's life must be free of sin, or at least such sins as would call forth God's warnings. This, however, is imprecise.

Descartes's life must be free of such sins as are known to him; after the first dream he left it indeterminate whether the "men" to whom his past life was "irreproachable" included himself. Strictly, Descartes must know that his future life will contain no sins so secret as to be known only to God. And this is impossible, since God knows men's hearts infinitely better than do men themselves, or, more exactly, since God knows the human heart in a way unknown to man himself. It would be possible, however, on the assumption that Descartes excludes knowledge of theology or divinity from that human knowledge which suffices to secure his future calm. This assumption is doubtless contradicted by the "rational theology" of the published writings. But the *Olympica* has already excluded poetry and what it signifies, "revelation and enthusiasm," from human knowledge, and never implies the possibility of "rational theology."

Moreover, just as the waking interpretation of the third dream culminates in "the human knowledges and the profane sciences," so now the melon of the first dream is interpreted as "the charms of solitude, but presented by purely human solicitations."[13] The supreme charms of solitude, "the solitude of his *poêle*" in Baillet's phrase (AT 10:187), or of the *poêle* of *Discourse* 2, were the charms of the quest for knowledge, or philosophy. "If, among the purely human occupations of men, there is some one which is solidly good and important, I dare to believe that it is that which I have chosen" (*Discours*, 3). It should go without saying that the choice of a "purely human" occupation, when that occupation is philosophy, is dependent only on knowledge that is accessible to man as man.

The *Olympica* has paused in its "descent" to allude by means of the melon to the "purely human" character of philosophy, in agreement with the meaning of "Pythagoras." It can do so only by treating the events of the first dream in inverse order. It now reverts from the melon and the stranger, with which the dream culminates, to the earlier "violent wind" and the "evil spirit," apparently losing sight of philosophy as well as calm. The "evil spirit," now become "the wind which pushed him toward the church of the college," tried "to throw him by force into a place where it was his purpose to go voluntarily." The evil spirit that entered the *Olympica* in the interpretation of the first dream as the mysterious cause of a bodily pain has now migrated into the dream proper.

To grasp the new interpretation we must compare the details of the dream as first recounted with what is now said of it. In the discrepancy between the two accounts lies the clue to the first dream. In the new version "it was his purpose to go voluntarily" into the church; in the earlier account he was "walking up the street," trying "to advance to the place where he wished to go," a place that is in no wise identified as the church. Only after he is "frightened" by "certain phantoms" and blown about by the "violent wind" does he

seek first the college and then the church of the college. Hence only in the predicament caused above all by the violent wind, that is, the evil spirit, does he "voluntarily" seek the church. (Descartes's "irrational" identification of a fearful wind with a fearful deity has a precedent if not a model in Lucretius's account of the origin of belief in gods: *De rerum natura* 5.1126–1232.)

The hostility of the evil spirit to Descartes's advance "to the place where he wished to go" is matched by its opposition to civility. Turning to a man of his acquaintance, "to be civil," Descartes "was repelled with violence by the wind that blew against the church." Conversely, civility or friendship enables one to withstand the evil spirit, for the stranger who speaks in "civil and obliging terms" and the friends who converse with him are unaffected by the wind. (In the 15th *Idyllium* Ausonius speaks of the friendship of the Pythagorean sect while indicating its vulnerability: the Pythagoreans perish for the crime of friendship.) The stranger and his friends are inside the college but outside the church, for whose refuge they have no need. The stranger's remark points Descartes to "Monsieur N." and a melon, not to the church. The stranger of the first dream would seem then to anticipate the "Pythagorean stranger" of the third: the first stranger is unperturbed by the evil spirit that drives Descartes to the church, while the second directs his attention to *Est et Non*, which signifies a truth distinct from revelation.

We now consider the relations of "the evil spirit," "God," and "the Spirit of God." The "wind," or the evil spirit, keeps Descartes from being able to "advance to the place where he wished to go," as the phantoms have previously done, whereas in the reinterpretation "God did not permit him to advance further." Since the action of God and the evil spirit is one and the same, we may be tempted to the remarkable inference that they are identical. Moreover, "the Spirit of God" raises a similar question: "I was driven by an evil spirit to the temple," but it was "the Spirit of God" that "made him take the first steps toward that church." "The first steps" toward the church, as distinct from his original motion "to the place where he wished to go," are the immediate result of the action of the violent wind. This identity of actions makes it appear that the three superhuman agents or persons are in fact one. God "let him be carried off, even into a holy place, by a spirit that he had not sent." The spirit whom God had not sent can scarcely be "the Spirit of God," and thus the identity of the three superhuman agents or persons is questionable; but it is beyond doubt an evil spirit whose actions are controlled by God. In this cryptic manner Descartes poses, but does not offer an explicit discussion of, the timeless question of the relation of evil and omnipotence. But by leaving his reflection at this stage he makes clear why he nowhere indicates that future calm will be attained in and through "the church."

The difficulty of regarding the *Olympica* as a faithful account of actual dreams has now become insurmountable unless we suppose that God, by controlling the images of the dreams, sought, according to Descartes, to control as well the interpretations, which alone give them meaning; but that he somehow neglected to control the images of the upright stranger and the melon, which divert Descartes from "the church."

The new account now offered of the second dream supports our earlier view of its movement from fear to calm. The fright of the second dream "indicated, in his opinion, his conscience [*syndérèse*], that is to say, the remorse of his conscience [*conscience*]." The cause of remorse is "sins," just as they were the cause of the fears of the first dream. Only now does Descartes make it clear that he doubts whether he had sinned according to his own knowledge ("the sins that he could have committed"). Once more the issue concerns the belief in a divine power who knows such possible secret sins as are not known with certainty by Descartes himself, or a belief which denies that one's future calm is within the power of human knowledge. As observed above, to understand the movement to calm we must conjoin the cause of fear that is named only in the new account, namely conscience, with the recourse to philosophy, mentioned only in the first account.

The "clap of thunder" (*foudre*) is the signal for "the Spirit of Truth": it is not a *foudre du ciel* in the sense of divine punishment. Nor is "the Spirit of Truth" the same as "conscience," which nowhere is said to indicate "the future." The "Spirit of Truth" appears twice in the *Olympica*, first (according to the reinterpretation) in the aftermath of the second dream, at the moment of, or just prior to, the turning to "reasons taken from philosophy," and again in the waking interpretation of the third dream, at the culmination of the ascent via the pagan poet and the pagan philosopher. It is never connected with a superhuman being.

We may turn to the *Discourse* to confirm this view of Descartes's rejection of conscience, as well as for a view of vows that bears on "the vow of a pilgrimage to Our Lady of Loretto." It will be recalled that *Discourse* 2–3 is Descartes's only published account, unmediated by a biographer, of his opinions at the time of the *Olympica* writing. In *Discourse* 1 Descartes, having sought "a clear and assured knowledge of all that is useful to life," had concluded, with regard to his studies, that there was "no doctrine in the world such as I had been made previously to hope for" (*Discours*, 4–5). Accordingly, in *Discourse* 2 he takes "the unaided resolution to divest himself of all the opinions that had been received previously in his belief" (*Discours*, 15). His purpose compels him, in the first provisional moral rule, to regard "as excessive all the promises by which one curtails anything of one's liberty" (*Discours*, 23–24). Among such excessive promises he includes the "vows" that

remedy "the inconstancy of weak minds." His "resolution" will deliver him from "all the repentance and remorse which customarily agitate the consciences of these weak and wavering minds" (*Discours*, 24–25). By his "resolution," therefore, Descartes dispenses utterly with the necessity of repentance. It goes without saying that this view has no precedent in the Christian tradition.

Descartes reserved his thematic treatment of the specific human type of "weak minds," and therewith of "conscience," to his last publication, the *Passions of the Soul.* But given the *Discourse* account of his view of vows in 1619, and the absence of any proof of an actual pilgrimage, the assertion of the vow to journey to Loretto will be decisive only for those who select statements from the *Olympica* without considering each one in the light of the whole. Even a proof of the pilgrimage would not establish his piety, for the necessity of prudent speech that Descartes mentions in *Discourse* 3—"in the corruption of our morals there are few men who wish to say all that they believe" (*Discours*, 23)—clearly applies equally, or even more, to action.

Among the *Olympica*'s superhuman panoply, the "Spirit" (*le Génie*) of Descartes, who "had predicted these dreams before he lay down on his bed," would seem least deserving of serious consideration, but one or two observations may be made. This "Spirit" is dissociated from the affiliations of "the evil spirit." No relation with "God" is suggested in any way. Regarded positively, it resembles "the Spirit of Truth" insofar as it predicts future dreams, just as the latter opened to him the treasures of the sciences in a dream that "signified the future." This predictive capacity alone would remind us of Socrates' *daimonion* (see especially *Theages* 128Dff.), or *génie* as Descartes termed it. Socrates' *génie* was as distinguishable from the Olympian gods as Descartes's "Spirit" is unrelated to all other superhuman beings of the *Olympica*.

This parallel is not unduly "speculative." Toward the end of his life, according to Baillet, Descartes wrote a treatise *De deo Socratis*, which has been lost (*Vie de Descartes* 2.408). However, in a letter of 1646 he identified his belief that "interior joy has some secret force to render Fortune more favorable" with Socrates' belief in his *génie*: "What one commonly calls the *génie* of Socrates was doubtless nothing but that he was accustomed to follow his interior inclinations, and thought that the outcome of what he undertook would be happy when he has some secret sentiment of gaiety, and, on the contrary, that it would be unfortunate when he was sad" (AT 5:529). In understanding Socrates' divine sign as a natural inclination, Descartes was perhaps following a favored author, Montaigne, who also specified, however, that natural inclination was to be "well purified and prepared by continual exercise of wisdom and virtue" (*Essays* 1.11).

Descartes's 1646 view of Socrates' *génie* has in common with his "Spirit" in the *Olympica* its detachment from "conscience." True, the 1646 view appears to offer no basis for the *Olympica* statement that "the human mind had no part" in the dreams predicted by "the Spirit." But this superhuman or, strictly, nonhuman activity is not said to be supernatural. And his view of 1646, because it related the *génie* to "Fortune," which was for him superhuman or nonhuman but not supernatural, would be shocking, Descartes realized, to "weak minds": "I would not wish to write this to persons who had weak minds, for fear of leading them into some superstition." Parts of life are ruled by "Fortune," as was asserted by Descartes in the same letter: "Concerning the important actions of life, when they are encountered in such a doubtful form that prudence cannot instruct what one should do, it seems to me one has good reason to follow the counsel of one's *génie*." Adoption of such an explanation for Descartes's "Spirit" in the *Olympica* does not, however, require us to exclude an element of ironic exaggeration, similar to that of Socrates' references to his *daimonion*.

6

The conclusions to be drawn, "as through a glass, darkly," from Baillet's summary of the *Olympica* furnish an indispensable insight into the earliest phase of Descartes's "rationalism." As contrasted with the published writings, the *Olympica* is characterized by the absence of a "rational theology" and the presence of a visible relation between a finite "evil spirit" and God. These related if not inseparable features are derivative from its deepest trait, the practical quest of the young Descartes—or at any rate the protagonist of his *Olympica*—for rational assurance of tranquility. This quest may be called that "pagan" or Stoic element of the *Olympica* that Descartes found impossible to reconcile with traditional biblical theology.

It is clear that he equally failed to reconcile the evil of the "evil spirit" with the goodness and omnipotence of God. The peculiar literary form of the *Olympica* is partly designed to indicate as well as to obscure the most heterodox acknowledgment of his failure. No doubt this failure appeared to Descartes as that "awakeness" or emancipation from the bondage of "ancient opinions" for which the sleeping slave struggles at the end of the first *Meditation*.

Only by diligent application to its "poetic" rhetoric does the *Olympica* become intelligible. That it does not represent merely an early and superseded stage of Descartes's thought is indicated by those doctrines it has in common with the published writings—especially as regards "conscience." Far from

being the writing in which Descartes claims a divine inspiration for his philosophy, the *Olympica*, as distinct from the published writings, which present a "rational theology," clearly distinguishes between rational knowledge and all theology. It could thereby be regarded as even more "rationalist" than the traditional interpretation of Descartes.

The later "rational theology" is evidence that Descartes was dissatisfied with his early conclusions, or with their rhetorical presentation, or both. Yet it was the same problem of divine omnipotence, which finds no solution in the *Olympica*, that led, as the most illuminating of Gilson's Cartesian works has shown, to Descartes's "perhaps most original," most heterodox, and most dissimulated theological doctrine of the divine creation of eternal ideas.[14] A separate study would be required to examine the connection between the emergence of this doctrine and the transformation of the finite "evil spirit" of the *Olympica* into the omnipotent one of the *Meditations*.

NOTES

"Descartes's *Olympica*," *Social Research* 28 (1961): 171–204. Reprinted with kind permission from Social Research.

1. René Descartes, *Discours de la méthode, texte et commentaire*, ed. E. Gilson (Paris: J. Vrin, 1925), 125, 158. References to the *Discourse* are to this edition.

2. E. Gilson, *La Liberté chez Descartes et la théologie* (Paris: J. Vrin, 1913); H. Gouhier, *La Pensée religieuse de Descartes* (Paris: J. Vrin, 1924), 4–20; G. Lewis, "Bilan de cinquante ans d'études cartésiennes," *Revue philosophique de la France et de l'étranger* 141 (1951): 249; J. Laporte, *Le Rationalisme de Descartes* (Paris: PUF, 1950).

3. Regarding Descartes's first provisional moral rule (especially "to obey the laws and customs of my country, retaining constantly the religion in which God has given me the grace to be instructed from my childhood"), C. Adam observes: "his protestations of respect with regard to the religion of his country, entirely sincere as they are, should not impose on us. At that time, the most inclined to skepticism, in word and in thought, showed themselves, in their actions, Christians and Catholics [like everyone], and the skeptic philosophy that a Charron or a La Mothe le Vayer, for example, will teach will be a 'Christian' skepticism" (AT 12:57).

4. Walter Schulz, *Der Gott der neuzeitlichen Metaphysik* (Pfullingen: G. Neske, 1957), 9, 53.

5. J. Maritain, *The Dream of Descartes* (New York: Philosophical Library, 1944), 16; C. Adam, AT 12:49; G. Milhaud, *Descartes savant* (Paris: F. Alcan, 1921), chapter 2. Maritain writes that Descartes took the third dream as a "revelation bearing upon the future" (15), but "revelation" does not appear in Descartes's opinion of the bearing of the third dream on the future, as will be seen below.

6. Descartes's "poetic" rhetorical practice lies between that of the ancients and that of the Enlightenment, for which it prepares. As regards fables see Aristotle's remarks on Aesop, in *Rhetoric* 1393a30 and especially 1394a2: "Fables are suitable for addresses to popular assemblies." The most famous ancient example of a *fable du monde* is the "myth" of Plato's *Timaeus* 29D. Descartes's immediate access to this tradition was probably Bacon; see especially Bacon's remarks on fables in the preface to *De Sapientia Veterum* (1609). According to Pico della Mirandola, the ancient motive for "poetic" rhetoric was not primarily fear of persecution; see Q. Breen, "Giovanni Pico della Mirandola on the Conflict of Philosophy and Rhetoric," *Journal of the History of Ideas* 13 (June 1952): 397: "We are not unlike the ancients who by their riddles and by the masks of their fables made uninitiates shun the mysteries. . . . Those who wish to conceal treasure not intended for sequestration are wont to cover it with refuse or rubbish. . . . A like endeavor, to wit, that of philosophers to hide their business were fitting for people who not only do not appreciate but also do not even understand them." See especially Leo Strauss, *Persecution and the Art of Writing* (Glencoe, IL: Free Press, 1952), 35: "a philosopher who chose the second way . . . would leave it to his philosophic readers to disentangle the truth from its poetic or dialectic presentation."

7. In the 12th *Idyllium* Ausonius refers to the Pythagorean use of the letter Y to signify that crossroads at which the choice of life is made. Similarly, Persius (*Satirae* 3.56–57) refers to the "Samian," that is, Pythagorean letter, which presents the good or "right" branch, or the course of virtue, as against the bad or "left" branch, which is the path of indulgence. The scholium to Persius indicates that the decisive choice is to be made at age sixteen; Ausonius's "Pythagorean" choice is made in the 16th *Idyllium*. I am grateful to Mr. S. Benardete for these references, as well as for the ancient meaning of "melon" as noted below in note 13.

8. See the conversation with Burman (AT 5:168–69): "Mundi creationem satis ex sua philosophia, prout illa in Genesi (quem librum, ut et Canticum et Apocalypsin, si quis auctori explicet, magnus ipsi erit Apollo) describitur, auctor explicare posset." ["The author could explain adequately from his philosophy the creation of the world just as it is described in Genesis (if someone should explain that book to this author—along with the Song of Solomon and Revelations—he will regard him as a great Apollo)." *Ed.*]

9. P. Bayle, "Ausone," in *Dictionnaire*: "Quoique l'opinion générale le fasse Chrétien, il y a d'habiles gens qui croient qu'il ne l'était pas"; "en ce temps-là, le Christianisme étant sur le trône, et le Paganisme étant exposé aux disgrâces et à la persecution, il n'arrivait guère qu'un Chrétien se fît Païen"; "que peut on voir de plus moral que sa description du vir bonus?"

10. See the prefatory letter to *Meditations*, AT 9–1:4: "I have always considered that these two questions, concerning God and the soul, were the principal ones which ought rather to be demonstrated by reasons from philosophy than from theology." See also letter to Mersenne, AT 1:143–44.

11. Compare Locke, *An Essay concerning Human Understanding*, in which the chapter "Of Faith and Reason, and Their Distinct Provinces" is followed by the chapter "Of Enthusiasm," in which "enthusiasm" is "this way of immediate revelation, of

illumination without search, and of certainty without proof and without examination"; *Philosophical Works*, ed. J. A. St. John, 2 vols., Bohn's Standard Library (London: Bell and Daldy, 1868), 2:19; and Leibniz, *New Essays concerning Human Understanding* 4.19. See also Descartes's distinction between "all the wisdom that one customarily has" and "divine revelation," which "raises us at a stroke to infallible belief," in the prefatory letter to *Principles of Philosophy*, AT 9–2:5.

12. For the Cartesian doctrine of intellect and imagination see especially J. Klein, "Die griechische Logistik und die Entstehung der Algebra," in *Quellen und Studien zur Geschichte der Mathematik, Astronomie und Physik* 3 (1936): 207–25. [Translated as *Greek Mathematical Thought and the Origin of Algebra*, trans. Eva Brann (Cambridge and London: MIT Press, 1968). *Ed.*]

13. For the ancient meaning of the melon in Galenic medicine, as a counteractive to the passions, see *De simplicium medicamentorum temperamentis ac facultatibus*, chapter 23. (*Opera omnia*, ed. Karl G. Kühn, 11 [Leipzig: C. Cnobloch, 1821–1833]: 777). Descartes's meditation in the *poêle* can begin when he, by chance, is free from the passions (*Discours*, 11).

14. See Gilson, *La Liberté*, 157: "De toutes ses conceptions métaphysiques elle est peut-être la plus originale, celle qui contient le moins d'éléments adventices et qui s'explique le mieux par les nécessités internes du système. C'est peut-être aussi pourquoi Descartes se garde la mettre en évidence et semble la dissimuler." As regards the amazing brevity of indication of Descartes's heterodox doctrine of God in the *Meditations* and *Principles*, Gilson asks (14): "Quelle est peut-être la raison de ce silence ou tout au moins de cette extrême discrétion?" and indicates (441–42) the direction a possible answer could take: "Il ne transforme les conceptions traditionnelles que lorsqu'il s'y trouve contraint, c'est à-dire lorsque les exigences de sa physique sont incompatibles avec la théologie communément enseignée."

Chapter Six

Descartes's *Discourse on Method*

The *Discourse on Method* is a very famous book, but it is also quite unsatisfactory. It is, of course, not a book in one sense but an introduction to a volume that contains, in addition, three other writings—three scientific writings—the *Dioptrics*, the *Geometry*, and the *Meteors*. Now why is this book so widely read, as widely read perhaps as any philosophical book? Its appeal seems to be, first, that it is autobiography. It is rare for a philosopher presumably concerned with the universal, the timeless, to spend so much time telling us the particular details of his own life. Autobiographies are written by statesmen or by movie actresses or shall we say by retired surgeons, but very rarely by philosophers, that is, until modern philosophy—that is, beginning with Descartes. After Descartes we have of course Vico; we have something that looks like autobiography, called the *Confessions* of Rousseau. Descartes seems to establish a genre. Now we catch on to the trick of Descartes's book fairly quickly. The stages of his life are not only correlated with, but in fact identical with, parts of his philosophic system. This means that we acquire the whole of Descartes's philosophy in an effortless but very unsatisfactory way. Nothing in this book is really thought through or at least carefully and adequately reasoned through. And so we are left to wonder what Descartes had in mind when he wrote the system as the story of his life.

A glance at the table of contents tells us where to look to answer this question. In the sixth and last part, Descartes says that the author will supply the reasons that caused him to write; and so as a kind of timesaver, I shall turn directly to the last part of the *Discourse*. It begins very quietly and soberly. He was about to publish a treatise when he heard that a certain opinion in physics had been condemned by an authority, and he grants that authority a certain place. He does not name the person that was condemned or the book that was

condemned or the authorities that condemned them. The reticence is hollow because everyone at that time would know that the author of that book was Galileo, that the condemned doctrine was Copernicanism, and that the authority that condemned it was the Holy Office, more often referred to as the Inquisition. He doesn't have to spell that out because his readers already know it. He says that this book, so far as he could tell prior to the condemnation, as far as his reason could tell him, was not harmful to church or to state. Reason, that is, is no guide to what you can publish. So he suppressed the book. That's my first point: we must note the theological-political situation after the condemnation of Galileo. This is the "hermeneutic situation" of the *Discourse on Method*.

The condemnation of opinions advanced by philosophers is nothing new. The new thing follows, and this is my second point. Descartes does not in fact really say that he wishes to argue that there ought to be freedom of speech or that Galileo should be allowed to publish that book. He does not offer the kind of argument for the freedom of publication that we in the twentieth century somehow automatically read in. No, the new thing is that the situation is intolerable for a second and different reason that now enters the scene. The new thing Descartes has discovered on the basis of his physics, rather by chance—we have to keep our eye on that—is this: suddenly after completing his philosophy, but especially his physics, he discovers the possibility that philosophy no longer needs to be theoretical, which means no longer concerned with knowledge of first principles of the whole sought for their own sake. That whole tradition of "speculative philosophy" may now be laid aside in favor of "practical philosophy." And it is here that he introduces that memorable praise of practical philosophy: it will make us humans the "masters and owners of nature." He now argues in detail why this will be of immense potential benefit to all mankind, in three fundamental ways. It will produce, first, an infinity of inventions that will satisfy our physical needs; second, it will produce a genuinely scientific medicine, a medicine that will produce health, "the first good and the foundation of all other goods of this life"; third, it will lead to a kind of new practical wisdom, based somehow on this peculiar science, medicine—peculiar, because the medicine is not what we normally think of as medicine but a science of the acute dependence of the mind on the body.

Now, the third reason why Descartes publishes arises from the first two. Since the public or humanity is to benefit from this project, Descartes turns to the public to support his project, which means not only the public but also the rulers of the public. They must support the project, and thereby alter the theological-political situation after Galileo. Now we understand immediately from that why the first fact of the *Discourse*—its popular style—is absolutely crucial. But of course it is not the public but young philosophers and scien-

tists who will carry out and complete Descartes's work. And no matter how popular the writing is, Descartes is emphatic that he has placed in the book quite enough for intelligent readers to take their bearings by and to carry on his endeavor—he means in the *Discourse* together with the three scientific treatises that accompany it. Since the book must persuade the public and their rulers to alter the theological-political situation, but is also addressed to philosophers and scientists, it is necessarily written on two planes. And we shall find abundant evidence of that. You could say that rhetorically the book has this double addressee, public and philosopher. If you think about it, it also has two opponents: first, the Church, which is sedulously distinguished from the secular political authorities in the context—the Church insofar as it is an obstacle to this project; and second, theoretical or speculative philosophy—mainly Aristotelianism. But one can combine those, of course: the name by which we join together those two great powers is "Scholasticism" or *L'Ecole*.

With these first intimations of Descartes's intentions in the *Discourse*, we are ready to start at the beginning. The first thesis in Part 1 is that good sense or reason is by nature equal in all men. Later on he will flatly contradict this. In Part 2 and at a still later point he will argue that some men are naturally much more stupid than others; for example, even the most stupid man can invent sign language. That is, the first thesis in the *Discourse* is an example of the use of deliberate contradiction. What is the point of this contradiction? We begin with the first thought, so familiar to us. Our good sense or reason is equal because everybody is satisfied with as much as he's got. Notice that the beginning is quite pleasing: you don't have to envy anybody. But of course, it's also a fallacy. It's an old French proverb that Descartes picked up in Montaigne. If you notice that it's a fallacy, of course, you're especially pleased, but this time with your own superiority. Everybody's pleased! It's a very pleasant beginning. This is irony, in the most technical sense of the word, addressing two different thoughts to two kinds of readers in one and the same sentence. Descartes in the first paragraph, in the one-sentence paragraph, gives us a little ABC "how to read me" lesson.

But it actually goes on for five paragraphs, which you could call the proem to the book. It has an interesting movement—something like this: Paragraph 1: All men are by nature equal. Paragraph 2: I, however, am inferior to other men in certain perfections of mind, imagination, memory, and so on. Paragraph 3: I was lucky; I happened to find a method that made me a philosopher and superior to other men. Paragraph 4: Maybe, however, I'm fooling myself—like a deluded alchemist who thought he discovered the philosophers' stone. Therefore I will level with you and simply tell you the story of my life. Paragraph 5: The story of my life, however, is a history, or if you prefer, a fable. Everybody, I hope, will thank me for my frankness, on the old

principle that everybody thinks an author means exactly what he understands in the author. But that Descartes intends the duality of level, of the *Discourse* as history and fable, becomes perfectly clear because shortly afterwards the terms "history" and "fable" come back in again. Generally speaking, fables simulate and histories dissimulate, and histories must be "read with discretion"—that is Descartes's recipe for reading the *Discourse*. Putting this together we ask: have we learned anything about the autobiographical character of the work? Yes. Autobiographic form is a device that dissimulates superiority. Descartes is able to speak on the plane of autobiography while at the same time indicating via that same autobiography a different level of teaching. This means that we often have to interpret this book on the public level before we find its arguments. We'll come back to that in just a moment.

The argument proper of the *Discourse* begins in the heart of Part 1 with Descartes's critique of his college education. He starts with a goal: clear and assured knowledge useful for life. He claims that he was taught that goal by his Jesuit teachers. At the end of this college discussion, he reiterates that goal, only this time he calls it not clear and assured knowledge useful for life but useful for *this* life. He has left his Jesuit instructors behind in one decisive respect. This principle, call it certainty for the sake of utility, in this life, is the first principle of Descartes's methodology. In reading this book, we have to distinguish between the method—the four rules that we find in Part 2—and the methodology, the more general guiding principles out of which comes the method proper. The whole book is *Discourse on Method*, that is, *logos* on method, that is, methodology. The word is a nineteenth-century word but the thought is Descartes's. The methodology will come down to a small number of guiding principles. In the particulars of his education only one thing, mathematics, is certain and nothing is really useful, useful for life. Certainty is one thing, utility another. Do the two ever come together? Now, initially, Descartes surely leaves the impression that he seeks certain knowledge of the useful; thus, in that way, the two would be united. That would mean, for example, mathematical knowledge—knowledge as certain as mathematics—of the goals of human life. This he never attains, and, if we observe carefully, never really attempts. It is not really his notion that we can apply a doctrine of certainty in any of its forms, mathematical or methodical, to the question of the good.

The quest for certainty is much more obtrusive in the book. It is spelled out through a series of steps: mathematical method, metaphysics (which is said to be even more certain than mathematics), and mathematical physics. It surely supplies premises or conditions for the other inquiry, which is about utility, as articulated into the knowledge of the goals of life or the goods of life. While certainty is always in the foreground, the other inquiry, into the good life, is

ultimately distinct. It is always based on experience, and it is never certain. That is, the more fundamental, that which supplies the direction, is always on the plane of the empirical. The certainty-utility distinction is the ancestor of the distinction familiar to us between facts and values, but this ancestry can be misleading, since Descartes never restricts knowledge to the certain. The ultimate guiding knowledge is always of the goal, the end, the useful, and it is never certain. The primary question is "what is the right life?" and in that respect Descartes is clearly in the Socratic tradition. In the *Discourse*, these themes are developed in alternation: the certainty of method in Part 2; Part 3, morality, which is uncertain; Parts 4 and 5, metaphysics and physics, which belong in the sphere of certainty; and finally, utility—that means the end, that means the uncertain again—returns in Part 6.

The sphere of certainty is a program that has to be developed. But the utility or the good has to be discussed immediately. Otherwise Descartes does not know where he is going. But where is this initial reflection on the useful or good? The answer is conveyed through the particulars of his autobiography plus certain general remarks, for example, about ancient morals. He gives us the basis for this principle of interpretation by the following argument: He was studying in one of the best schools in Europe. Europe in his century was as flourishing and fertile in great minds as in any previous time. He was judged by others to be the equal of his fellow students and thought so himself, and the students were destined to replace the masters. That means that he is the equal of any man that ever lived in the tradition, in philosophy, theology, liberal arts, and so on. He has elevated himself by the argument to the position where he can claim that his particular judgment is worthy of consideration as a general verdict upon the tradition of arts and letters, which means the whole tradition of learning including philosophy and theology. Every particular biographical detail, then, has potential general meaning, and we have to enucleate this general meaning often out of particular facts.

In Part 1, the reflection on the good leads to this general view, if we put together some of these details: Our reason, human reason, is exclusively in the service of our own interests or subordinate to the passions or the desires. And the desires do not include a particular desire to know, to know for its own sake. I call this the natural egoism of reason. Initially, as you recall from the very first paragraph, the stress is on how egoism distorts our reason: good sense is equal because each man is satisfied with as much as he has, because each man's ego thinks as well as possible of itself. Ego distorts reason. But at the end of Part 1, after Descartes's travels, he says that he has learned—and this is obviously an empirical inference—that "the reason of each" (the phrase is identical in the first paragraph) is sound when it is concerned with what is immediately before one on those occasions when an error causes pain.

And it is sounder than the speculations of the men of letters. That is, it is sounder than those who are concerned, so they think or so they say, with knowledge for its own sake. That supposed concern is simply an attempt to be superior to "common sense"; it is vanity. We know from the later passage about "speculation," and its rejection for the sake of mastery of nature, that it is one of Descartes's key terms. The rejection of speculation or of speculative philosophy here is really on the plane of a general thesis about all men's nature. This primary level of critique is on the plane of the human soul as such. Hence in the whole *Discourse* Descartes never says that there is a natural desire for knowledge, or that philosophy begins in wonder. In the decisive context for this issue (*Discours* 5, near the end), when he asks "what is man?" he first compares man to machines and then says that the same principles that distinguish man and machines apply equally to the difference between man and animals. It is in that context, where he says what man is, that he says what reason is. Reason is necessary and it is described as an instrument—a universal instrument, but an instrument. That is the conclusion already prepared by the natural egoism of reason. Since reason serves the passions, and doesn't naturally seek knowledge, it needs to be conducted. Hence the title of the book, *Discourse on the Method for Conducting the Reason Well*. Descartes goes on to add: *and Seeking for Truth in the Sciences.* The title's duality mirrors the utility-certainty duality that we were speaking of before. Thus, for Descartes it is the nature of the soul, which demands that reason be conducted, that leads up to the method proper.

How does Descartes establish this proposition? If you deny natural egoism, then you talk about virtue as did the ancient writings on morals, lofty and splendid but built on sand, or without any real knowledge of how you acquire it. What is needed is the low and solid foundation for morality or virtue, namely, the foundation of natural egoism. Consider a second example. If you do pursue knowledge for its own sake, as had been claimed by the whole philosophic tradition, what is the result? Endless disputes without resolution, and nothing so strange or incredible that it hasn't been maintained by some philosopher. And if the philosophers had found the truth or if they had been honestly in quest of it for its own sake, would they not have found it? This last argument is, of course, troublesome because it suggests that the truth must be essentially simple. If men had found it, they would have been able to convince each other and put an end to the dispute. But can the truth about the first principles of all things, of the whole, be essentially simple? There is another possibility, namely, that the truth which the philosophers sought, the truth of ultimate principles, is either unavailable or is unnecessary or both. The first principles may be replaced by methodology, and that is, in fact, what I shall be advancing as a reading of this book.

By the end of Part 1, Descartes has advanced the notion that all men naturally pursue their own good, although some men naturally have more reason than others. So Descartes asks, "What way of life should I follow? What is the good for me?"—for a naturally superior man. Part 2 develops this question of the good, and then Descartes tries to make the certainty and the need for method emerge out of the good. Since philosophy, traditionally understood, is evidently not the good life, whereas other human pursuits evidently are useful, Descartes asks the question in what the perfection of these pursuits consists. It is a meditation on perfection. Perfection is more probable if the activity is conceived and executed by one master. That is especially true in the arts: and the arts are recognizably useful and benevolent human activities. Furthermore, all human activities, if well carried out, have the character of art. In addition, the arts have a structure; they in certain cases include others or are more comprehensive than others. The builder of the house comes under the one who plans the city, and he, in turn, under the legislator who lays down laws for a whole people or nation. Since the arts as such are benevolent, the most comprehensive is the most benevolent, always assuming, of course, that it was the work of one and not of many. Finally, Descartes takes the step that reasoning itself, or philosophy, may be considered as an art. That means that philosophy is considered as a form of mastery. But it must be made one, or it must be purified of its manyness. Descartes traces its manyness both to the variety of teachers that we have and to the fact that owing to our nature, reason develops much later than our passions and our senses. That disproportion in human nature has to be overcome; mastery of human nature is the first condition of mastery of nature simply. Several purgations of both kinds of manyness are necessary, and that points directly to the model of that which owes nothing to nature, to the senses, or to teachers, namely, the truths of geometry and mathematics.

This project—a word Descartes uses in this context—could be just a vain hope. Most of the arguments that we've been using about mastery and about perfection through mastery are taken without acknowledgment from Francis Bacon's book on method, the *New Organon*, published seventeen years before. In that book, there was a long section, thirteen aphorisms, on reasons why the human race can have hope, ultimately thanks to a methodical science of nature. But Descartes doesn't need to argue that we need to have hope: he already had a science of nature before he dreamed of "mastery." While he is proceeding in a series of arguments here in *Discourse*, Part 2—from the argument about mastery to the need for purification of reason to the need for method—his own life proceeded in the opposite sequence. Before he ever imagined that philosophy could be understood as mastery, he had fully conceived and executed a universal method and shown that this could

be successfully applied to the science of the physical world. In an earlier fragment called the *Regulae* there is not a whisper of an argument about mastery, but there is a fully developed argument about mathematical method. This earlier fragment is plainly not a quest for first principles, and therefore the question arises, what is the intention of philosophy? In that book there is hardly any answer. Between the *Regulae* and the *Discourse* Descartes learned from Francis Bacon that the end, since it cannot be theoretical, must be understood practically. That means that the book we are reading is, in its apparent biographical sequence, in fact the reverse of the truth, or it is a fable, not history.

One could say that that's not quite sufficient—that it is still the story of this unique man, suitably modified, that tells us that it is his unique passion for mastery, his unique natural temperament, his ego, which explains why it is a model. In other words, by gathering the inner truth of the autobiographical account, we don't leave the ego of Descartes behind. No, we simply understand its thought in the correct philosophical sequence by retaining the crucial importance of the fact that his whole project had to be conceived in one ego of a certain kind, namely, that of Descartes. As regards that egoism, we have the notions of mastery and perfection and of benevolence. We do not yet have the notion of the recognition for the benevolence, or glory, except for a statement in Part 1 where Descartes says, "I do not despise glory as do the Cynics." That's a clue to his willingness to acknowledge glory as part of the good. To summarize this point, we move from the natural egoism that is common to all men to the peculiar egoism of this man, his quest for mastery, and both of the stages will be prior to and conditions for the epistemological ego that will emerge in the famous sentence from Part 4, "I think, therefore I am."

At this point, in between mastery and method, there is a political interlude, a kind of acknowledgment that Descartes is on collision course with society. He must purge his reason; he must doubt all belief and opinion. But what are belief and opinion? They are the bond, the constitutive bond, of these "great bodies," as he calls them, societies. Therefore, his reform must be kept absolutely private. If he were to publish the necessity for doubting all belief, he could be reasonably accused, he says, of attempting a new reformation, a word he uses twice in the context. Remember the year: 1637. What's going on at that time? The Thirty Years' War, that is, the war whose primary, though not sole, cause is the Reformation. This whole part of the *Discourse*, Parts 2 and 3, begins with allusions to the war that's going on. We must connect "reformation" with those particular wars. Since he says, "I am only going to reform my own thoughts," it might seem that Descartes is politically a conformist, an upholder of the status quo. That would be plausible if he didn't publish the fact that he is obliged to doubt all his beliefs. Moreover, the con-

clusion would be acceptable if Descartes didn't discuss at some length the problem of reforming these great bodies and indicate that reformation is primarily a matter not of legitimacy but of prudence, that is, of success. Descartes, furthermore, leaves no doubt that the extant political states are all in need of reform. At this point Descartes doesn't have any new political doctrine. But we know in reading this part that we are reading a published book. So this private man did eventually publish his demand for the doubt of all opinions, and thereby indicate that he has in mind some sort of reformation. Reform will require disciples, imitators. The world is almost totally made up of two kinds of men who ought not to imitate his model. The first kind is too hasty and impetuous; the second are those who have enough reason, or enough modesty, to know they don't have enough reason to imitate Descartes. You can see he wants a man who is persevering, who avoids precipitancy in employing the method, who has superior brains, and is immodest. In that way, while telling you that "almost" the whole world is made up of those two kinds who should not imitate him, he has of course exactly specified the kind of men that should imitate him. I think that's one of the clearest places in the entire work where you see a distinction of kinds of readers of Descartes. The peculiar kind of reformation has already been indicated: change the theological-political situation so that the project of mastery of nature can begin to develop and benefit mankind.

In approaching the method proper, we are at a great disadvantage, because we have presented here in words a method that is in principle mathematical. Descartes, I think, intends us to read this section in light of the whole argument, the method in the light, shall we say, of the methodology. For example, immediately following the four rules of method, Descartes makes a general proposal: all the things that fall within the knowledge of man, he imagines, could be interconnected by deductive chains of reasoning, just as we find in geometry. He imagines, that is, a kind of universal deductive system of everything. And yet that has to be corrected by what we have already seen and shall see: the applicability of method is partial. Neither the reflections on the good that have preceded nor those that follow can be mathematicized, nor can they be studied by the four rules of method. To anticipate, we cannot demonstrate mathematically, and we do not need to demonstrate, the fundamental premises, that pain is bad and pleasure is good. You can deny those truths without contradicting yourself, but they are as certain for any living human being as any principle of mathematics.

We shall say a few things about the rules of method just to indicate what is involved without really explaining them adequately. The rules of the method are meant to point to a set of algebraic operations. Descartes's algebra uses algebraic symbols, that is, algebraic signs, not only as symbols of arithmetic

qualities (numerical amounts), but also as symbols of geometric magnitude. But, in addition, geometric figures can in turn symbolize both algebraic symbols and arithmetic amounts. That is bewildering. Thinking it through, what is at work is that the intrinsic intelligible differences between the kind of entities that you're studying in arithmetic, say numbers, and the kind of entities you're studying in geometry, that is, lines, and so on, or the distinction between discrete quantity and continuous quantity—all those differences can be ignored by the right technique. We know that, after Descartes, it came to be called analytic geometry. Now what else can we say about this method? The third rule says that we devise an order of inquiry—we invent one—if a natural order of inquiry is not available. That is, method to be certain need not be guided by any natural articulation that we ordinarily find in things. All that's necessary is that you have the certainty of the starting point, which makes possible a deductive sequence from that point forward. Essentially, the tactic is to find in the analysis of the terms of any problem the starting point, the simples, as he calls them, which are irreducible to anything else and which may be combined and brought into relation, and stated in algebraic symbols, and so on. If you think about it, what Descartes is advocating is that you do not start from where we naturally stand, that is to say, as human beings who have sense perception and opinions, and from that point seek to understand the phenomena and somehow to get access to more fundamental principles. This characteristic starting point, which one could say with some reason is the natural starting point of philosophy, is abolished by this methodological procedure. Another way of putting it would be that Descartes's intent is to find a starting point not in the prearticulated kinds of beings, but rather in principles that cut across the natural articulations. What sort of things would they be? Laws! Mathematical laws that govern all kinds of bodies, whether they be animals, plants, or whatever. Now there is a silence, a darkness in the argument here. What is it that Descartes is claiming to know? Only at a somewhat later point do we see that nature is understood by him as body, and as extended body. Now finally, and in a way most crucial, the simple thing about method is that method is not only a way of discovering but also a guarantee of knowledge. We usually distinguish between discovery and validity in recent discussions of methodology, but that distinction is not at all acknowledged by Descartes. Method of discovery is identical with method of validation, or verification, if you like. That means if you learn something by the method, it deserves, owing to the methodological procedure, to be called "knowledge." There is no necessity that you trace the causes of what you know to still more general or higher causes. At each step, in short, you have a fully guaranteed claim to know, thanks to the methodological procedure. For example, we don't need to understand bodies in terms of the ultimate parts or particles.

This demand for ultimacy is one meaning of the traditional term "metaphysics," and we shall have to keep our eye on this matter because our initial judgment, reading the discussion of method proper, is that there is no need for metaphysics—no need for a further warrant, no need for a quest for the causes or ultimate principles underlying these causes. But that seems to be contradicted later in the *Discourse*. Since this contradiction makes the metaphysical discussion in Part 4 of great importance, I am going to some extent to slight the contribution of Part 3, the provisional morality.

Descartes says elsewhere that he put this morality in the book in order to persuade pedagogues that he was not against religion. When we read it, its piety isn't all that persuasive. For example, rule one says "Conform": conform to the laws, customs, and religion of my country—that means the laws, customs, and religion of Catholic France—or, he says, to the most moderate opinions wherever you are. But you may be in Persia or in China—you see how loyal he is to the laws, customs, and Roman Catholicism of France, or to the Christianity of Europe. But, he goes on, "conform to what people do, rather than to what they say, because in the corruption of our morals, there are few people who want to say all they believe." That belongs again to our rhetorical problem: why the double level of speech? Well, here's one reason: because of the corruption of morals, few people "want to say" all they believe. In Part 6 he says, "I do not *want to say* that I agree with Galileo." He indicates quite clearly in that way, by this very precise repetition of the phrase, that he did agree with Galileo. Now, "conform" apparently means even to despotism or tyranny, so long as it leaves you alone to philosophize. But some countries are better than others, and at the end of Part 3 he goes to live in a country, Holland, where they leave you alone, at least more than elsewhere.

Rule two says "Be resolute," persevere in one direction. The four rules have a kind of rhythm: rule one, externally, conform; rule two, internally, be resolute; rule three, externally, conform, this time not to society, but rather to the order of the world; rule four, internally, find your satisfaction and contentment in the continued pursuit of the truth. None of these four rules is clear and distinct in the strict sense of the method. "Clear and distinct" in the strict sense means what cannot be doubted. And the indubitable is that whose denial produces a contradiction. None of these moral principles has that character. Therefore the statement in the table of contents that he drew his morality from his method cannot mean that he drew his moral rules from the rules of the method. What it means is that the necessity for a provisional morality, and certain fundamental characteristics of that morality, are created by the adoption of the method. For example, because you do not take your bearings by the natural articulation of things, as is implied in the method, you are in

the situation as described in rule two, you are in a forest—you do not know where you are. That is to say, the world around you does not supply any articulation; therefore, you adopt a direction and persevere, regardless of what seems to be around you or how the world seems to be articulated.

Rule three is particularly interesting, because it is about mastery. It seems to be just the opposite of what we've been construing Descartes to say in Part 2. The rule begins by saying, "I agree with the Stoics, don't try to master fortune or change the order of the world, but only master your own thoughts." When we follow this through, we see that Descartes is not really a Stoic. He is a satirist of the Stoics. For example, he says if you should follow this splendid precept, you would not want to be healthy if you are sick—after all, only your thoughts are in your power and you don't concern yourself with what's outside your thoughts. You will not want to be healthy if you are sick, or be free if you are in jail, any more than you want to fly like the birds or have a body as incorruptible as diamonds. In this absurd manner, in short, the Stoics thought they could rival the gods, but only by forgetting their humanity, their corporeality, and their mortality. The limits of what is in human power now are not identical with what can ever come within human power. We have to correct for this satirical element in order to make the third moral rule agree with the mastery arguments that preceded it and with the great stress on health and medicine that will follow. The fourth moral rule is not really a moral rule, but states the goal that underlies the other three rules, namely, to continue to pursue the truth. Here we find two very innocent words, contentment and satisfaction. They recur in a technical sense in many contexts in Descartes. Contentment means a state that reflects the general character, the goodness of one entire life that has been chosen. Satisfaction is the pleasure that attends a particular activity, here the discovery of the truth. Both belong together as kind of a refined hedonism that has as yet no moral relation to other human beings, except the negative one that we have seen in rule one, conformism. Descartes is silent here about what it is that he knows that is so pleasant. But already by the end of Part 3 it seems quite clear that he has embarked upon some of the fundamental researches of his physics and he alludes to some of the inquiries embodied in the accompanying three treatises. Nonetheless, he argues in the sequel that the science of physics must not, as that would suggest, precede metaphysics; it could not, for it must derive from metaphysics. So we must consider the metaphysics, and then see the relation to physics.

In Part 4, Descartes treats three of the traditional problems of metaphysics. The first is substance, what it means to be, in any and every case in which we say something is. The second is the question of the ultimate, what is first, the cause or principle of the whole. The third traditional problem is truth. Descartes says that the human soul is a substance, that God is the first or ul-

timate thing, and that truth is clarity and distinctness. That appears to be fairly traditional metaphysics, vaguely Aristotelian. Looked at more precisely, it supports Christian doctrine and so is traditional in a second sense. The human soul is an independent substance that can exist apart from body; God in an omnipotent being; and clear and distinct ideas are true ideas only if they are guaranteed by God. That is, all three doctrines, taken in a more precise sense, offer considerable support to orthodox religious apologetics. Indeed, you can say, the implications of these metaphysical doctrines appear to offer a more direct support to Christian apologetics than the arguments that we find in Thomas Aquinas. They face two ways: toward foundations of philosophy, but also toward rational corroboration of Christian faith.

Consider the first argument, about the soul. Descartes says that after having doubted many things, including especially body, he cannot doubt that he exists, and since doubting is thinking, "I think, therefore I am" is true. This principle—the *cogito* as we call it for short—is "the first principle of my philosophy." It is the first principle not because it is the most certain: obviously it presupposes the principle of noncontradiction. It is first because it enables Descartes to solve a problem, the relation of mind to the world. There is a double requirement: the knowing or thinking of mind must be pure of influences on the mind, without the being of mind being hopelessly separated from the world. How does this happen? The knowledge that he is a thinking thing does not depend on knowledge that he is a bodily being. Thus, the thinking of the thinking thing is epistemologically independent of the world of bodies—that guarantees the epistemological independence of mind from the world. But it is not independent in being—not metaphysically independent. The fact that I know only that I am a thinking thing does not mean that I am only a thinking thing, that is, a mind whose existence is independent of the existence of body. Yet Descartes does draw this conclusion: mind or soul is a separate substance, independent of body, and therefore could be immortal. That supports religious apologetics. But Descartes waffles: he admits that the argument for an independent soul is fallacious in the preface to the *Meditations*. So we must separate the solid conclusion—epistemological independence—from the fallacious conclusion—metaphysical independence—that supports the apologetics. The solid argument does not imply that mind or soul is a substance: we have to separate the solid from the metaphysical.

Consider now point two, the existence of God. Descartes argues from an idea in the mind in both of his proofs of the existence of God. That is, he does not argue, as Thomas Aquinas had argued, from nature to God. There is no ascent from nature to God because Cartesian nature shows no evidence of being made by God. Cartesian nature is mechanism. "The laws of nature," says

Descartes, "are the same as the laws of mechanics." Since mechanism is devoid of purposes, nature shows no evidence of the purposes of God. Thus Cartesian physics, in its mechanistic character, determines in this negative way the character of the proofs for God's existence: they cannot begin with nature. The sequence of the *Discourse*, first metaphysics, then physics, is the reverse of the true sequence. But if nature shows no evidence of a divine author, then this theocentric metaphysics is in profound discord with the Bible. That discord is kept out of sight in Part 4, because theocentric metaphysics is positioned before physics puts in an appearance in Part 5.

Consider now the third point, truth. Descartes argues that truth is clarity and distinctness. First, he proves that God exists, using clear and distinct ideas; then he says that God is the guarantor of clear and distinct ideas. That is the Cartesian circle, a famous problem. But it is, of course, strong support for religious apologetics: all our ideas, including especially truth, depend on God. If you think about the argument, it is a very interesting interpretation of omnipotence. If an omnipotent God exists, then it follows that he was the cause of your thinking at each step of the prior argument, just as he is the cause of everything. Circularity of argument, in short, is unavoidable: if God is omnipotent, then circularity of human reasoning is unavoidable, and philosophy becomes problematic.

Did Descartes wish to undermine philosophy in order to support a religious apologetics? Precisely the theocentric character of the metaphysics undermines the rationality of philosophy while seeming to support apologetics. But now we observe something new: the apologetics itself is designed only to persuade a relatively low human type, what Descartes calls "weak minds" (*esprits faibles*). "Next to the denial of God, nothing leads weak minds away from virtue more than the denial of the immortality of the soul," he asserts in the last paragraph of Part 5. Descartes is not a weak mind, but a man of good sense, an *esprit fort*, a strong mind. Since Descartes does not himself need apologetics—neither he nor his disciples—we wonder whether he needs theocentric metaphysics. It now appears that he prefers philosophy to the theocentric metaphysics that jeopardizes philosophy. The metaphysics proves to be divorcible from his philosophy. This divorce first appears in the divorce of physics from metaphysics.

From Part 4, we have learned that there is no ascent from things or nature to God as their author or first cause. Is there not, however, a descent from God to nature? If there is neither ascent nor descent, to or from God, then God has no relation at all to nature. God would be redundant in the Cartesian philosophy. Descartes must descend from God to nature, or descend from God as the author of nature to nature, if he wishes to preserve a harmony between his philosophy and the Bible. The laws of nature must be shown to be compati-

ble with the biblical account of creation—that's the first problem of Part 5. It is obviously not fundamental for the question of Copernicanism in Galileo, who did not even know the laws of nature in this sense. As regards the action of God, we have to be quite careful and enumerate precisely what is attributed to him. God has established laws of nature and has imprinted ideas of these laws on our souls. Moreover, God has created matter sufficient to form the world. And he agitated the matter in diverse ways so that it obeys the laws of nature. He does nothing else. That is, in the beginning, God created chaos, but a chaos of bodies that obeyed the laws of nature, out of which, bit by bit, slowly over eons of time, evolved the physical world as we know it, the sun, the solar system, the earth, and on the earth, plants. Animals—that's a problem: Descartes cannot deduce them. In the sequel, he has to make two corrections in this account. The ideas of laws of nature are imprinted in us. They are innate. But the ideas of those laws in us do not tell us that God is the author of those laws. So Descartes has to correct the account. The reasons for the laws of nature are derived from the infinite perfections of God, he says. This gives us a link, a kind of cognitive descent, from God to the laws. But it does not tell us that God established the laws. Creation is still moot, of course. Moreover, we can ask from which perfections of God does Descartes derive these laws. No answer is forthcoming here in the *Discourse*. Surely not from his omnipotence or omniscience, for this God of Descartes is allowed to do very little. He does as little as possible, and lets the laws and the evolution of time do almost everything. He is remarkably underemployed, if he possesses all of these infinite attributes. But, of course, we have the other book, *The World*, which is being summarized in *Discourse* 5. There Descartes does use one of the divine attributes—immutability—and says that from immutability he deduced the laws of nature. This means that the laws of nature are immutable, but it does not tell you what they are and what their content is. So Descartes is reduced to saying—this is, in a way, the conclusion—that God preserves the laws. His preservation of the laws is equivalent to the action by which he at first created the world. This is an old doctrine, advanced by certain medieval theologians, to reconcile divine creation with the eternity of the universe. Descartes uses it in *Discourse* 5 and the effect is that since God now only preserves the world in being—and that is the meaning of creation—God has not established anything. The world is now the same as it has ever been, coexistent with God. That is the second correction. Since neither the character of the laws nor the things that emerge thanks to them show evidence of being made by a benevolent deity, the descent from God to nature is at best empty. Neither by ascent nor by descent is God related to Cartesian nature.

We now, I think, approach the deeper level of Cartesian philosophy. We have been pursuing one metaphysical issue, the question of ultimacy or first

ultimate principles. We have seen that the relation of God to nature is simulated or empty, and that tells us that the relation of the Bible and creation, on the one hand, and the new physics, on the other, is negative or one of mutual exclusiveness. This simulation only hides from us the deeper problem, that there is no ultimate principle whatever. The phrase "laws of nature" seems to imply a divine lawgiver. But none is in fact necessary. That is to say, there's no reason in principle why we can't move directly from method to laws of nature. And that Descartes does in earlier books. The simulation of the divine lawgiver serves to dissimulate the absence of any metaphysical first principles. The laws of nature are known as laws because they satisfy the requirements of method, not because they can be traced to or lead to some metaphysical principle. In short, methodology and metaphysics are mutually exclusive.

Let's support this conclusion by considerations following a different route. Descartes speaks of laws of nature as governing matter, but what is matter? That issue belongs to physics, which he says is too controversial to discuss in the *Discourse*. That's his familiar striptease again: the most fundamental things are the things he can't talk about. He does, however, tell us crucial aspects of his doctrine, namely, in Part 4: when he speaks of the object of the geometers, he speaks of it not only as extended in length, breadth, and depth, but also as moving. The object of the geometers, in short, is simply the extension of the world, or "all my physics is part of geometry," as he says elsewhere. But what of this extension? Is it simple or compound? After all, any extension that we encounter is a compound body, capable of division; it normally does, in fact it always does divide. What are its parts? Are these ultimate parts atoms, or is extension infinitely divisible? What are the ultimate parts, if any? Descartes's position is quite evident here from the silence: we can know the laws of nature without answering the question of the nature of the ultimate parts. The metaphysical ultimacy is unnecessary. That separates in its essential character this apparently very materialist physical doctrine from the materialist physics of, say, a Lucretius, which absolutely derives from the discovery of the ultimate particles. This is the modern concept of nature. Descartes does not know the ultimate parts. Newton insisted, "I don't know the ultimate parts; I don't need to for the sake of my three fundamental laws of motion." No one today knows the ultimate parts either. Of course, the more we discover about the parts or particles, the more we have to revise the laws. Nature lacks finality. And if we don't know the ultimate parts, we certainly do not have a concept of the whole, of nature as a whole.

If man ceases to have a relationship to the whole, then what becomes crucial to him is his relationship to other men. This is the premise, you can say, of the politicization of philosophy. We have caught a glimpse of it in Part 6:

philosophy or science joining together with the body politic in the mastery of nature for the alleviation of the human condition.

We can now put the right questions to our starting point, Descartes's statement of his goal, mastery of nature. This goal sounds amazingly contemporary in the twentieth century, provided, of course, we substitute "science" for "philosophy." It is already clear in Part 6 that Descartes proposes what has become a realized fact for us. Science has become a function of society, of its needs and goals, for instance. Conversely, society is constantly dependent on science, for its well being, for its standard of living, for its military defense, and so on. Now it is not my purpose here to draw up one more balance sheet of goods and evils of this project of modern science. As students of philosophy we should note at least that the quest for understanding has lost its former directness toward transcending the political, and standing in a relationship to the whole and to that which is always. As regards political society, it has lost its fundamental characteristic as a self-sufficient community in charge of its own well-being. Its technological goals and its military security depend on a world community of scientists.

But as students of the *Discourse*, we have to ask this final question. Has this bond between philosophy or science and society been shown to be reasonable? If we cast our eye over the whole of the *Discourse on Method*, we can see that everything in Descartes's thought depends on his weaving together two quite distinct strands. Initially, he sought certainty for the sake of utility. The utility theme, the good or end for man, is throughout governed by the natural egoism, the premise that man naturally seeks his own good, which means, with all due refinement, his own pleasure. Descartes does, of course, state what sounds like a categorical law of obligation in the early part of Part 6. There is a law, he says, that obliges us to benefit other men to the degree to which it is in our power. If we note carefully, however, all the instances of the word "oblige" in Part 6, we see that he revises this categorical obligation and makes it a hypothetical obligation: If you are virtuous, that is, if you desire to benefit other men in ways possible through your science, then you are obliged. To do what? Well, to support science, experiment, exchange experiments, and so on. In short, the categorical character of the obligation simply recedes into the hedonistic or utilitarian goal. That concludes the utility theme. The other theme, the certainty theme, is spelled out in terms of mathematics, that is to say, mathematical method and mathematical physics. The utility theme and the certainty theme as articulated are irreducible to each other. That's really the key, I think, to understanding this methodology. We recognize that irreducibility in a certain way today. It is the same heterogeneity of human experience and scientific laws that is the great theme of certain twentieth-century philosophers, for example, Whitehead in *Science and*

the Modern World. The irreducibility of these two strands to each other means that they are in principle disparate. Descartes does not really say that the determination of the answer to the question "what is the right life for man?" must be based upon scientific knowledge. His reflection here is entirely in terms of human experience. We can separate these heterogeneous strands, and that is the liberating fact that we learn from the *Discourse*. We are free to interpret the nature of science in ways other than mastery of nature. We are free to learn from science while recognizing its limitations. Here, in Descartes, science does not know the ultimate, the particles; it does not know the whole. As scientific knowledge, it does not comprehend the human. If reinterpreted within these limits, its knowledge may well be an immense benefaction. But since it knows neither the whole nor the human part, we are free to philosophize independently of Cartesian and modern science.

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Chapter Seven

Descartes and Mastery of Nature

1

The common judgment is that Francis Bacon is the originator of the concept of "mastery of nature," which is so indispensable in the technological crisis of this century. Attempts to trace the Baconian concept to anterior origins in Renaissance magic or Christian theology have touched upon but one or two aspects of his argument, which is moreover an indelibly philosophical one. On the other hand, the concept has never proved central to the interpretation of Descartes, the generally acknowledged "founder of modern philosophy." It is often noted, to be sure, that Descartes in a celebrated passage in *Discourse* 6 advocates the replacement of "the speculative philosophy of the Schools" by "a practical [philosophy]" which will make us "like masters and owners of nature."[1] But nowhere else does this phrase, or a similar one, occur in the Cartesian writings, whereas in Bacon's works the mastery concept is ubiquitous. The *Meditations*, Descartes's central philosophic writing, asserts in its title and in its preface its place in the traditions of speculative "first philosophy" and Christian apologetics. We have no weighty efforts to bring its metaphysical doctrines into significant connection with the mastery concept of the *Discourse*. Historians may observe the importance of *scientia propter potentiam* for Hobbes, but they do not stress mastery of nature as a thematic goal of modern philosophy. The influence of Baconian "mastery" remains dormant, it is usually held, until the sciences break away from their philosophic parentage, and develop their technological potential—most obviously in the nineteenth century. Among the philosophers of our century, Dewey is altogether rare in identifying the mastery concept as goal of philosophy and humanity; he traces it to Bacon and passes over Descartes. In sum, the power of

the Baconian mastery goal is exerted only within the sciences, but only in a puzzling and delayed manner, and scarcely at all on the course of modern philosophy. Accordingly, there is scarcely any valuable research on the Baconian or seventeenth-century origin of that modern technological humanitarianism, so powerful for good and evil, which has made the human future incalculable in unexampled degree.

"Mastery of nature" is today the enterprise of advanced technological societies, singly and within the world scientific community, within which it is difficult to affix responsibility among the interconnected agencies and factors. Yet the one indispensable element must be located in its theoretical component—in what Hans Jonas has called "the new concept of *nature* [which] contained manipulability at its theoretical core."[2] Here we have to do with the mathematical and experimental theory of modern physics. Bacon indeed propounded the mastery goal, opposed the speculative tradition with argument unrivaled in scope and force, and recognized that experimentation was more precise than unaided sense perception, but the mathematical instrument it was to employ was unknown and even alien to his empiricism. It is rather Descartes who implants "mathematicism" in the heart of philosophy and science. To him we owe "analytic geometry" and "universal mathematics," the law of inertia, and the elaboration of a model of nature more comprehensive than that of Hobbes, in which the "rules of mechanics are the same as those of nature" (*Discours*, 52). Moreover, it has never proved possible to separate the metaphysical doctrine of Descartes, especially his substantial dualism, from close dependence on, or close complementarity with, his mathematicism and mechanistic physics. The question therefore must arise with which we are here concerned. Can mastery of nature be regarded as an intrinsic and guiding objective of Cartesian philosophy—and therewith of the problems and structure of the tradition of which he is the principal founder? The textual paucity of the phrase "mastery of nature" presents little obstacle. The one passage that turns on this phrase is the most explicit and complete treatment of the nature of philosophy in the Cartesian writings.

We must first indicate the measure in which Bacon established a framework within which to consider Cartesian mastery of nature. Bacon's starting point, often reiterated, is that "the greatest error of all the rest is the mistaking or misplacing of the last or farthest end of human knowledge."[3] His positive endeavor is that "contemplation and action may be more nearly and straitly conjoined and united together than they have been" (*Advancement*, 35). "Contemplation" (or "speculative philosophy") here means the quest for knowledge of the first or abiding beings or principles, whether further practical consequences are present or not. This conjoining, which suggests a synthesis in which contemplation and action are each given due weight,

a rejection of the contemplative goal simply, and a reinterpretation of it with a view to "action." The formulae of the new goal resound throughout the modern period: "Human knowledge and human power meet in one"; "dominion of the human race itself over the universe" for the alleviation of man's mortal condition.[4] The repetitive sterility and barren disputatiousness of the contemplative tradition is contrasted with the steady progress of the arts. Even though some inventions have served human oppression—gunpowder, the compass are instanced, but not the printing press—and perhaps all contain that possibility, they are instruments and models for that comprehensive art of investigating nature in which alone the ultimate victory over evil can be found. Mastery of nature has both the character of an impetuous wager, and a somber, reasoned deliberation. Bacon's powerful formulae are rhetorical instruments of an appeal to humanity that has tended to conceal the underlying deliberation. No philosopher more openly declared that philosophic speech must combine, in the same writing, open and public address with a less visible discourse addressed to those of philosophic capacity.[5] His formulae are popular expressions of the conclusions of his deliberation. What is at stake in this wager concerns both the public and philosophy because it demands that humanity, using philosophy or science as its instrument, seize control of its own destiny, instead of allowing philosophy to turn its back on humanity by contemplating the transhuman, eternal order. As regards the speculative tradition, if the "forms" discovered by the Platonic and Aristotelian philosophies were truly the efficient causes of the generation or destruction of at least some beings, some human works would have ensued. Their consequence has been barren. Hence no reflection on speculative philosophy from within its own intention is required. It seemed reasonable to conclude that a theory that has led, directly or indirectly, to no human production, while pretending to know first causes, is less genuinely knowledge than that which produces works as evidence for theory, even if not theory of first causes. It seemed reasonable to wager that a truly universal goal that conjoined theory and practice, the interests of philosophy and of humanity without exclusion, could be the engine that carried theory to new heights.

Bacon's endeavor is best understood as a critique of the antihumanitarianism or nonhumitarianism of ancient political philosophy. The Platonic Socrates tells us in *Republic* 5 that unless philosophers rule as kings, or kings seriously cultivate philosophy, there is no rest from ills for the cities, nor for humankind, nor will the best regime come forth from nature and see the light of the sun. This proposal is the peak of Greek philosophy's care for humanity. By the end of *Republic* 7 it has been shown to be impossible, or extremely unlikely, and even undesirable or unnatural in certain respects.

The goals of philosophy and humanity are separated by the greatest of differences; the philosophers are enamored of the contemplation of the whole or of the first or that which abides; the multitude do not philosophize. The coincidence of philosophy and political rule would require the coincidence of the perfections of virtue and knowledge, of natural philosophic endowment and social and material conditions, and such coincidences are always subject to chance. The supreme humanitarian solution must exist then only "in speech," or only "in imagination"—in the phrase of Machiavelli which Bacon takes over. "As for the philosophers, they make imaginary laws for imaginary commonwealths; and their discourses are as the stars, which give little light, because they are so high" (*Advancement*, 206). Bacon declares that he is "much beholden" to Machiavelli who teaches us to observe the low and universal, or almost universal: what men do and not what they ought to do. The mastery of *fortuna*, nature, or chance of Machiavelli's *Prince* (especially chapter 25) is imitated by "the architecture of fortune" in *The Advancement of Learning*; what seems restricted to mastery of human nature is extended by Bacon to "lordship over the universe" in *New Organon* 1.129. The imaginary politics of Greek philosophy (here must be included the best regime of Aristotle's *Politics*, which is also dependent on chance) is not only useless but dangerous: its nonhumanitarian goal made it vulnerable to the equally or more "imaginary" politics of religion. It became the subordinate "handmaid" to revealed theology in the Christian Middle Ages. Nonhumanitarian philosophy shows itself as antihumanitarian philosophy; neutrality is impossible: if philosophy pretends to be the impartial spectator of the human fate within some eternal order it falls prey to the imperfect humanitarianism of religion. Bacon sought to conjoin the speculative quest for the true nature of Greek philosophy with what he called "charity"—the care for humanity of the most universally received religion. This syncretism underlies the more fundamental syncretic union of philosophy and politics in Bacon's thought: a particular polity (for example, the New Atlantis) or, in the best case, a universal politics that sanctions and propagates the mastery of nature, is the necessary condition of the fulfillment of its humanitarian promise.

What we have called syncretism is often misunderstood as "secularized Christianity." It is true that Bacon claims that mastery of nature is a privilege granted to Adam and to his posterity in the Garden. It is reasonable to conclude that that argument is directed to those who accept biblical premises: his more sustained argument is independent of those premises. He contends that knowledge of nature is divinely sanctioned, so long as it is governed by charity, but that knowledge of good and evil was forbidden to Adam as an object of inquiry. Good and evil in general, and charity in particular, are

known by divine command, or by the Word of God; by the extension of charity Bacon purports to bring the fruits of the mastery of nature under divine command. By such a secularization, it is alleged, Bacon pours into the old bottles of Christian virtue the new wine of modern technology. Our wonder at this feat is aroused, however, when we consider the indefinitely long life, devoid of toil and replete with luxury, that Baconian mastery of nature holds out to mankind. But the secularization thesis collapses when knowledge of good and evil by divine command is openly replaced by knowledge of good and evil "nourished by natural philosophy" which furnishes principles to "moral and political philosophy" (*New Organon* 1.80), although this is a promise for the future. As for the present, since Baconian philosophy is addressed to mankind and not Christianity or Christian Europe, its premises are laid not in Christian charity but in the universal human appeal of bread, freedom from natural necessity, and bodily longevity. Consequently, it is not Christian doctrine but Baconian philosophy that controls the mixture of syncretic elements in the *New Atlantis* in which Christianity and the Bible are combined with elements of Persian and Egyptian religion. Yet this religious syncretism is but a part of the underlying "humanistic" syncretism of philosophy and politics.

That "human knowledge and human power meet in one" does not entail the literal coincidence of philosophy or science and political power. Bacon leaves it ambiguous whether or not the philosophic rulers of the research institute, Solomon's House, are identical with the political rulers of the *New Atlantis*. Bacon thereby respects the Platonic heterogeneity of philosophy and politics, even within their conjunction. Philosophy's domination employs the indirect means of rhetoric and "works" or technology. The political power of philosophic mastery of nature lies initially in its prophecy of irresistible benefits, and subsequently in the fulfilled prophecy of those same benefits, which permits further exercise of prophecy. Its power resides in the desires of "men as they are" and the rhetoric that addresses those desires. A distinction can be made in Bacon's writings between the preparatory rhetoric, which gained such widespread European acceptance of the humanitarian goal, and the particular rhetoric required in the future which preserves some particular regime (for example, the New Atlantis) devoted to that goal. The one leads insensibly to the other, as is easily confirmed by our "advanced technological societies." If all philosophic publication is political action of some kind, nonetheless Baconian philosophical publication, which seems to mold humanity to seek a society in which science is the principal benefactor of mankind, is political action of an unprecedented sort. After Bacon political rhetoric almost never constitutes the particular subject matter of philosophic writings, as in Aristotle's *Rhetoric* or the *Gorgias*. Political rhetoric becomes absorbed into

the substance of philosophic speech because of the concern with the interest of humanity.

After Bacon scarcely any philosopher is exempt from the power of his humanitarian syncretism. What is properly called "Baconian" is the assumption by philosophy or science of the care and responsibility for the material and spiritual well-being of humanity, and not a narrow concern with material technology. Even those rare modern philosophers who seek to reassert the ancient speculative goal, or who seek to combat the mastery of nature in one or all forms, typically show themselves members of "the party of humanity" by proposing political societies that are founded in universal rights [as opposed to] the rarity of human excellence; or in the "inevitable" progress of history toward just social forms; or in some redemption of humanity from the nihilisms of the age. Since all philosophic attempts to save humanity from the Baconian technological mastery goal are themselves humanitarian, it is hard to avoid the conclusion that they remain Baconian in principle. The reason for this power of Baconian humanitarianism is not often correctly located. It did not require, and never possessed, the new natural science, or a new metaphysics, neither of which are found in Bacon's writings, except in nascent form. Its basis lies in no epistemology, but only in the human knowledge of misery, especially of death, and the conviction that it is ignoble not to avenge our subjugation at the hands of a niggardly nature by the exaltation of the power of man.

2

The immediate sense of mastery of nature in Descartes must be drawn from the one passage of its assertion, in the *Discourse on Method* (1637). We must first remove the misinterpretation of this passage that Gilson's *Commentaire* on the *Discourse* has fathered upon two generations of scholarship. According to Gilson, mastery of nature and its potential for benevolence is an accidental and unintended consequence of his philosophy that Descartes came upon after virtually all of his system was complete. This conclusion derives its plausibility from the opening paragraphs of *Discourse* 6 (*Discours*, 60–62). "Mastery and ownership of nature" is introduced expressly only after Descartes "acquired general notions concerning physics," and physics had followed method and metaphysics in the canonical sequence of parts of philosophy in the *Discourse*. Descartes "notices" where these principles of physics might lead—to mastery of nature and its benefits—which obliged him to publish, since there is a "law" which obliges us to benefit other men, so far as it is in our power. Only at this juncture does Descartes for the first

and only time expressly advocate the replacement of "speculative philosophy" by "practical philosophy" of mastery of nature. Accordingly, Gilson concludes that "that which inspires the philosophy of Bacon, inspires only the publication of the philosophy of Descartes" (*Discours*, 444). Gilson's judgment would have force only if Descartes had indicated that his philosophy, prior to the discovery of the principles of physics, was directed to the speculative goal of the metaphysical tradition. But what Descartes asserts at this juncture is not the rejection of his own previous speculative philosophy, but "the speculative philosophy taught in the Schools." There is also the possibility, to be sure, that Descartes had not hitherto reflected on the goal of philosophy, and so had hitherto belonged unwittingly to the speculative tradition. But the *Regulae* (1628) virtually begins by conceiving of "the ends of study" in terms of "the guidance of action"[6] and *Discourse* 1 employs the criterion of "the useful for life" to condemn the whole prior tradition of learning, philosophy and theology. "Utility," so pervasive at the inception and throughout the *Discourse*, is assuredly not "mastery" but it prepares the turning to the perfection of various kinds of "masters" in *Discourse* 2, which in turn precedes method and metaphysics. Gilson failed to recognize that the utility criterion already excludes the speculative goal and thereby prepares the mastery objective. He did not envisage the possibility that discovery of the mastery potential of the physics is a realization of an original Cartesian intention, whose full disclosure was reserved until its realization became available. It would not be the first time that Descartes imputes to accident what is too untraditional to ascribe to his own deliberate design.

The initial as well as the ultimate problem we face in grasping Cartesian mastery of nature is the following. What is the measure of Descartes's opposition to the Church and its tradition, on the one hand, and to the tradition of speculative metaphysics on the other—and indeed how is the one opposition related to the other? The first opposition appears in Descartes's account of the most famous collision between the new science and the ecclesiastical tradition—the condemnation of Galileo by the Holy Office. Descartes does not name names, and does not indicate whether or not he too was a Copernican, but this reserve only supplies added force to an episode known far and wide to the learned public of the day. The question concerns the relation of religion and philosophy, not a particular scientific doctrine; he was unquestionably a Copernican, as even those who assert his invariable candor have acknowledged. He informs "the public" that he did not publish his earlier treatise on physics, either because he respected the authority of the Church over his actions, as distinct from the authority of his reason over his "thoughts," or because he feared a similar condemnation. However this may be, he replaces the authority of the Church over his actions by the authority

of the "law" which commands benevolence, mentioned before, as interpreted by his reason. This transfer of authority is dictated by the discovery of the implications of his physics for benevolent mastery of nature. He does not suggest that the Church might be the proper interpreter of the law of benevolence, or of the subsumption of his physics under that law. He does not allude to the Bible as sanction for mastery of nature as Bacon frequently had done; he openly departs from Genesis as Bacon had done implicitly. Mastery of nature will enable men to enjoy the fruits of the earth without pain "in this life." In the form of "medicine" it will conduce to health, the foundation of all human goods, and to the prolongation of life, or such victory over the grave as is available through human effort. It holds out the promise of an unprecedented practical wisdom, which we may reasonably identify with that knowledge of the use and enjoyment of the passions which Descartes calls "wisdom" at the close of the *Passions of the Soul*, his final publication (1649). The significant departures from the orthodox religions of his time are apparent.

On the other hand, Descartes often speaks as a faithful son of the Church, and presents his metaphysical theology and dualism of substance in support of Christian apologetics. The "secular coloring" of Cartesian mastery of nature in the *Discourse* seems emphatically rebutted by the metaphysics, especially when coupled with apologetic purposes in the *Meditations*. The measure of his opposition to the Church and its tradition must be judged in terms of the measure of his opposition to the tradition of speculative metaphysics. In the regnant Scholasticism that Descartes confronted, the Aristotelian speculative metaphysics was conjoined with revealed biblical theology. We must then ask some such questions as the following. In opposing "speculative philosophy," is Descartes rejecting its primary concern with the question of being or substance? In contrast with Bacon, Descartes expounds a substance doctrine of traditional type: is this legacy of the speculative tradition consistent with mastery of nature? Can Cartesian philosophy retain the traditional concern with being or substance while nonetheless regarding metaphysical knowledge as instrumental to the mastery of nature? In considering the elements of Descartes's double opposition to tradition, we take part in the contemporary discussion of the origins of modern "mastery of nature." One school, of vaguely Hegelian provenance, understands Descartes's effort as the secularizing effort of a child of his age; the other—Heidegger is its foremost spokesman—traces it to Greek speculative (especially Platonic) philosophy. These oppositions must be clarified before we can say in what measure Descartes's philosophy is a syncretic humanitarianism of Baconian type, but armed with the new instrument of a mathematicized physics.

3

The place of mastery of nature within the intention of Descartes must be determined within the *Discourse* and not the *Meditations*. The authoritative position of the *Meditations* in Cartesian study appears assured because of the radicality of its beginning in universal doubt, its full-fledged articulation of the separation of mind from body, and its authoritative account of the perfect deity who is the ultimate guarantor of all human knowing. Yet none of these features touches upon the end of Cartesian philosophy, about which the *Meditations* preserves silence. Because of this silence the end is usually taken to be knowledge. But the quest of the *Meditations* is for "foundations" of the edifice of philosophy or science, as laid down in the first paragraph of *Meditations* 1, and the goal of the edifice is not mentioned. The *Meditations* has the character of instrumental foundations for an unarticulated goal. On the other hand it also lacks the beginning of Cartesian philosophy. The universal doubt with which the quest for foundations commences has already presupposed the concept of the edifice to be founded, the ideal of certainty or self-evident indubitability which the foundations must possess, and above all the goal of the edifice. Moreover, in the *Meditations*, and in all its parts, the concept of nature as a corporeal world governed by the laws of mechanics is always present, often as a premise, a never doubted. Nowhere in the work is there a tincture of proof of the major ontological thesis that the essence of body is *extensio*. We must therefore allow the *Meditations* to recede from our view in any attempt to establish the structure and goal of Cartesian philosophy. The impression of autonomy, which the *Meditations* surely conveys, may be explained by Descartes's second or auxiliary purpose in presenting the work as a self-sufficient piece of Christian apologetics, whose ostensible themes are the existence of a perfect deity, and the independent—and therefore presumably immortal—existence of the soul.

The *Discourse* is Descartes's only comprehensive statement, published or unpublished, on the prephilosophic critique of the tradition, the necessity of beginning with a universal method, the parts of philosophy and their order, and its goal. Within the structure of the *Discourse*, the metaphysical argument, corresponding to the subject matter of the *Meditations*, is assigned a position in Part 4 clearly posterior to the critique of the tradition (Part 1), the method (Part 2), and the provisional ethics (Part 3). Our attention is therefore drawn to the criteria utility and certainty, with which Descartes judges the prior tradition in Part 1. But this double criterion has a prehistory: it develops as a criticism of the single criterion of certainty or self-evidentiality in the earlier fragment, the *Regulae*, which suggests one reason for the incompleteness of that writing. Between the *Regulae* and the composition of

the *Discourse* in 1636 Descartes all but completed the physical treatise, *Le Monde*, which he withheld from publication because of the condemnation of Galileo. It is in this pre-*Discourse* and post-*Regulae* interval that he most probably turned to the writings of Bacon in which he found the stress on utility, the arts as model of beneficence, and mastery of nature, all of which are absent in the *Regulae* and *Le Monde*, and thematic in the conception of philosophy in his first publication, the *Discourse*. The structure of the Cartesian philosophy is best understood as the attempt to unite two originally diverse lines of thinking, the mathematical science of nature of the *Regulae* and *Le Monde* and the utility-mastery theme of Baconian origin. This fusion becomes possible because the nonteleological mathematical science, despite its earlier development, is assigned the status of means or instrument of the utility-mastery goal. The idea of this fusion is the very germ of Cartesian philosophy, and the heterogeneity of its elements is in continual tension with its unification. The elements of the fusion are discernible in the formula "certainty for the sake of utility" which functions as criterion of the tradition in *Discourse* 1.

Descartes employs the standard "clear and assured knowledge useful for life" (*Discours*, 4) to judge the entire tradition of the arts and sciences, theology and philosophy in *Discourse* 1. Because certainty is given determinacy by the example of mathematics, whereas the "useful for life" remains opaque, it is often not recognized that the utility goal is a decisive emendation of Descartes's intention in earlier writings. *Regulae* 2 had begun with the character of knowledge as distinct from its end: "all science is certain and evident cognition." *Regulae* 1 had indeed spoken, first of the pleasure of contemplation, and then of the guidance of the will in the contingencies of life, as "ends of study." But the universal science or method of the *Regulae* does not include good or evil or the ends of the will; the will is unrelated to the intellect; the goals of science and of the philosopher (or "life") fall apart. The "useful for life" of the *Discourse* includes production ("the infinity of artifices") as well as guidance of will; it is aided by the model of the arts, which are on the whole disparaged in the *Regulae*. The *Regulae* in its quest for certainty may be regarded as pointing toward utility—to cessation of the state of uncertainty in many forms, which is a demand for contentment arising from the side of the "subject." This contentment, which Descartes calls by the Stoic term *bona mens* in the *Regulae* (*Regulae*, 2), is available only to those few capable of *humana sapientia*. Thus the *Regulae* remains "ancient" as regards the beneficiary of philosophy, and does not attain the standpoint of the useful for life which in the *Discourse* (for example, in the form of medicine) benefits mankind as man. Only with the *Discourse* does Descartes become humanitarian and modern.

With the abbreviated formula "certainty for the sake of utility" it first appears that certainty is the decisive element. Because they are not certain, philosophy and theology, the arts and sciences, are useless. Only mathematics is certain but its present utility is trivial; it must supply "foundations" to philosophy, which has hitherto been the source of uncertain foundations. Thus the certainty standard immediately points the way to the "mathematicization" of all branches of knowledge. Yet we must resist this conclusion, at least until certainty is brought into some relation with utility; indeed certainty and utility condition each other. "Theology" is useful as the way "to gain heaven," but it is uncertain because it lies beyond human reason, or comprises "revealed truths," and hence is useless to cultivate. Only certainty and utility in combination suffice to explain why the underlying standpoint is already "rationalism": the demand for the exclusive adherence to natural reason, subsequently expressed in the canonical sentence of *Discourse* 4: "whether we are awake or asleep we ought never to be persuaded except by the evidence of our reason." Just as the demand for a certainty equivalent to mathematics veils the underlying rationalism, so also the utility demand tends to obscure the underlying agreement with the "realist" or "selfish" psychologies of Bacon and Hobbes. Utility excludes both "virtue" sought for its own sake—the virtue of "the writings of the ancient pagans which treat of morals," the only moral writings considered—and knowledge sought for its own sake—the "speculations" of "the men of letters" or the Scholastic metaphysical tradition. Their common defect is their unawareness of the natural egoism of reason, or the pervasive power of the passions over all psychic life. Thus ancient virtue is often "insensibility" or "pride"—the attempt to be exempt from the passions which is itself passion. The "speculations" in turn are attributed to excessive self-esteem or "vanity" which plumes itself on a false superiority to the reason of "each" man, or "common sense" (*Discours*, 7–8, 9–10). The realism underlying utility thus fosters certainty, insofar as it seeks a psychological grounding in the universality of the passions, just as Hobbes and Locke found the basis of right in the allegedly universal passion for self-preservation; and the rationalism underlying the certainty requirement is broadly utilitarian in spirit.

"Inutile et incertain," Descartes's double charge against revealed Christian theology and Greek speculative philosophy, became in turn Pascal's indictment of Descartes.[7] Pascal seems to have perceived that no means, however certain in itself, can be certain *as a means* if the end is uncertain, and the goals of human life will always fall short of mathematically certain knowledge. Already in *Discourse* 1 it becomes clear that the utility goal can never be brought within the charmed circle of certitude—it can never be treated by "clear and distinct ideas" or by self-evident intuition and deduction.

Descartes is not guilty of the charge, often made, of universal mathematicism, of "the geometric prejudice," or of the inflexible demand for clear and distinct ideas. This mathematicism is only regional—applicable to the means, where, to be sure, it is already problematic. Yet the difficulty must be stated at a deeper level within the means-end structure: even if the means, for example, a science of nature comprehensive of all natural qualities and actions, were as certain as arithmetic, it must nonetheless remain uncertain *as means* because the end lacks certitude. Mastery of nature in Descartes, precisely because it "improves" upon Bacon by making mathematical knowledge the instrument of utility, necessarily introduces an unprecedented gulf between its "means-knowledge" and its "end-knowledge."

4

Descartes takes the step from utility to mastery in *Discourse* 2 by laying down the precept that there is more "perfection" in works accomplished by one master than in those made by many masters (*Discours*, 11). The precept is articulated by a series of examples which ascend from the prepolitical arts (architecture, city planning, and supervision) to the more comprehensive political art of the founder or legislator, culminating in the concept of a "pure and solid" reason whose *ouvrage* is a method that synthesizes logic, algebra, and geometry. In this reflection, certainty is at first absent but is then generated out of the reflection on mastery in the arts, in the form of mathematical method. The reflection of perfect mastery in the arts determines the choice of "the ways I ought to follow," that is, the choice of philosophy as the perfect life. For our theme it is of interest to observe that the mathematical method is made to develop out of the demands of philosophy as the most perfect mastery. This order can scarcely be other than deliberate, since it conflicts with the chronological order of Descartes's biographical development, as observed above, according to which the mathematical method of the *Regulae* was originally completed apart from concern with utility or mastery. The order of philosophy in the *Discourse* employs the arts to articulate the goal of mastery for which the mathematical method becomes the instrument. The turning to the arts is determined negatively by the utility standard, which had excluded ancient virtue and speculative knowledge as ends in themselves. Whereas human nature as such, or the natural egoism of reason of man as man, sufficed to exclude these ancient conclusions about human perfection, only the arts supply a model for the perfection of the highest life.

This turning to the arts reflects the agreement with Bacon: the arts are the undeniably benevolent human activity, as men generally acknowledge. Yet

only philosophic reflection on the arts lifts their benevolence above the level of opinion. Those art works which are not a plurality of diverse endeavors with diverse ends, or which proceed from one master and not several, have greater perfection. Moreover, arts that are more comprehensive are more perfect than those they include, as city planning is by contrast with the architect of a single building, or the legislator or founder of cities or peoples, by contrast with the city planner. Reason or philosophy, as the absolutely comprehensive art which provides for the goods of cities or peoples by the most comprehensive knowledge, is yet more perfect. This entire reflection largely repeats the argument of Bacon in *New Organon* 1.129, according to which arts and inventions are more beneficial and more peaceful, and therefore more worthy of honor, than the political arts, and philosophy, the art of scientific mastery over the universe, comprehends all the arts, including those of political founders and saviors of humanity, and is deserving of the highest glory. Descartes, however, asks the further question: what guarantees that the master himself is a "one" and not a "many" of passions, faculties, and goals? This question divides into the unicity of his knowing, on the one hand, and the singleness of his goal, on the other. The unicity of knowledge is satisfied by the purgation of reason of the heterogeneity of opinion, appetite, and sensation through methodical doubt; and by the "pure and solid" element of its cognition, mathematics or mathematical laws of nature. But the singleness of the goal would only be satisfied if reason were to produce its own goal out of itself, and not to receive it from a distinct and alien source, that is, from the opinion of mankind, religion, revealed theology, or inquiry into some source in the nature of man. Thus at this stage, neither the benevolence of philosophy in terms of its nonphilosophic or public beneficiaries, nor the perfection of the philosopher dedicated to perfect mastery through mathematical science, has received justification.

In the first or programmatic phase of the Cartesian philosophy—which we may identify with Descartes's reflection in the celebrated South German *poêle* in *Discourse* 2–3—these implications are stated with a certain reserve. From the same context one can easily get the impression that Descartes is unconcerned with the political, and that he thinks not of mastery but of acceptance of the world with Stoic passivity. He surely asserts that his reform is exclusively of his own private beliefs, and he denies that he seeks a "new reformation," that is, the public reformation of the beliefs on which great states are maintained which might follow were he to publish the demand for the purgation of opinion. He therefore stresses that he does not invite followers to imitate a course of action for which most of them lack the requisite credentials. In fact the world is almost wholly composed of men who lack the two essential qualifications of Cartesian philosophers, perseverance

or resolution and superior natural endowment of reason. By specifying the requirements in this exact manner, he tacitly invites the qualified to emulate him, and identifies his philosophic path as a *modèle* (*Discours*, 13–15). Moreover, this reservation to a purely private reformation of belief disappears in *Discourse* 6 when the new physics in its actuality discloses its benevolence to the public, and therewith the promise of glory to those who advance the cause of humanitarian science.

Descartes's Stoic passivity in the third moral rule (*Discours*, 25–26) also dissipates on a careful reading. He surely asserts that he will "try always to vanquish myself rather than fortune, and to change my desires rather than the order of the world." He concludes that everything but his "thoughts" is outside of his power, reminding us especially of Epictetus. However, the rule concerns those "actions" which are required while "cultivating my reason," that is, in pursuing the application of method to nature. Hence, knowing "what is in our power and what is not" does not mean, as with the Stoics, "living in accordance with nature," which for Descartes remains as yet undiscovered. It is of importance that we recognize that the Stoic rule is part of a morality *par provision*. Provisionally Descartes lived Stoically in accordance with the "order of the world," which here means only the human world of laws, customs, and religion, even while prosecuting inquiry into the natural "world." Accordingly, his account of the Stoics, who believed they had final knowledge of the natural world, that is, of what can ever become within man's power, has a decided element of satire. These ancient philosophers no more wished to be well when they were ill than they desired "to have wings to fly like the birds" or to be Emperor of China (*Discours*, 26). By such absurdities they sought to "rival the gods in their felicity" while forgetting their own mortality. They preferred a spurious superiority to common men—we are reminded of the vanity of the speculations of the men of letters—to that acknowledgment of our common, human corporeality which could spur philosophy to develop the medicine that conquers disease and senescence. Even provisionally, therefore, Descartes asserts an opinion by no means in conflict with the demand for mastery of nature through medicine in *Discourse* 6. The Stoics, among all ancient philosophers, asked the right question—what is within the range of human power?—to which only the future progress of science can supply an answer, which may always remain provisional.

5

This formative stage of Cartesian mastery of nature must now be confronted with the metaphysical doctrines of *Discourse* 4 and the *Meditations*.

Descartes's dualistic metaphysics has much to commend it as the appropriate ontology for the mastery of nature. We may regard the heterogeneity of the subject and object, of mastering human ego and inert, objective nature, as requiring a ground in the diversity of thinking substance and extended substance. Even this initial conclusion, however, requires a drastic revision of the speculative form of metaphysics, as distinct from its content. As indicated above, the principles of metaphysics are now understood as "foundations" of the edifice of philosophy or science, and the edifice—or "the tree of philosophy"—exists only for the sake of the goal or the "fruits." Since the *Meditations* is silent regarding the goal, we may use the prefatory letter to the *Principles* to identify the "fruits" as the produce of the highest branches of the "tree of philosophy"—medicine, mechanics, and practical, moral wisdom. Metaphysics, including knowledge of God, the highest principle, is instrumental to practice. Let us now assume that this novel, instrumental doctrine of substance could be regarded as compatible with its traditional content, doctrine of substance. Extended substance is devoid of life, self-moving organic compounds, purposes and final causes, and "secondary qualities" (in Locke's phrase)—all this precisely as demanded of the object of a mathematical physics. All such nonmathematicizable features of being are attributed to, or explained in terms of, the thinking substance, a separately existing mind or soul which has the exclusive privilege of being the autonomous source of its own activity. Furthermore, Descartes's theology is singularly appropriate to his mastery of nature goal. He knows that God is perfect, and the guarantor of the truth of clear and distinct ideas, but nonetheless cannot know the purposes of God, who is incomprehensible, in the natural world.[8] Physics must henceforth abandon final causes, and neither from God nor nature can be derived by rational procedures that knowledge of moral duties which might impede, or guide, the quest for mastery of nature. Rational theology is as agnostic as revealed theology with regard to human knowledge of right and wrong. The theological part of metaphysics thus furnishes the required negative sanction, the absence of suprahuman restraint on conquest of nature.

Descartes's metaphysics, summarily characterized with regard to our theme, has the following three functions. It claims to be Christian apologetics, as rational doctrine of God and the separate soul; "first philosophy" (subtitle of the *Meditations*) in the Aristotelian tradition, as doctrine of substance and first causes and principles; and "foundations" for the edifice of philosophy for the fruits of the mastery of nature. It almost goes without saying that no single metaphysical teaching can successfully perform these three heterogeneous functions without disclosing gross internal inconsistencies. The more clearly we grasp the foundations of Cartesian mastery of nature the less clearly does [Descartes] stand in the traditions of Christian apologetics and

Aristotelian "first philosophy." In *Meditations* 6 Descartes recognized that the separate soul substance, so useful as a support for Christian apologetics, could not be brought into relation with extended substance. The benevolence or veracity of God is of no avail: there is no suggestion that the interaction of substances is or could be made intelligible. Still less does Descartes claim that the two substances, as substances, together compose one being, in the critical case of human being. Only in private correspondence does he fall back on the hylemorphic solution to the unity of man—all too obviously a prudential, "Aristotelian," ad hominem argument, as is generally acknowledged. Nor is it reasonable to think that Descartes believed he could extricate himself from these difficulties by the pineal gland argument of *Passions* 1.30ff., since the very term "substance" never occurs in that work. Moreover, recent Cartesian scholarship, seeking to penetrate to the origins of Cartesian dualism, has experienced acute difficulty in finding the elements of what one could call an argument for duality of substance; not finding them in the *Meditations*, it has looked for them in any and every Cartesian writing, published or unpublished, but without significant success. These agnostic conclusions will not surprise those who observe, and follow up their observation, that the *Meditations* is devoid of the characteristics of a metaphysical inquiry into being or substance. Descartes nowhere in the six *Meditations* addresses the questions what is being, cause, substance, essence, accident, and so on, and never defines any of these terms formally or informally. If he occasionally employs them in traditional meanings, he at the same time enjoins us to believe that he has made every effort to doubt and reject the tradition, and sometimes quite explicitly indicates that he is employing traditional terms as ad hominem premises with which to simulate an agreement with the tradition.

The presence of gross theoretical difficulties in the substance doctrine and the absence of even an attempt to resolve them on Descartes's part; the presence of prudential rhetoric to simulate agreement with tradition, which every scholar without exception grants in some degree; the unmistakable attempt to reject "the speculative philosophy of the Schools"—all these conspire to compel us to seek in the Cartesian philosophy for solutions to its fundamental problems that abandon the metaphysics of substance. This will seem unnecessarily iconoclastic to those who believe that the consensus of twentieth-century scholarship necessarily represents a progress over the findings and judgments of the philosophers and the learned public of the late seventeenth and eighteenth centuries. We need not fear the charge of iconoclasm if we are aware that a mind of the stature of Leibniz could declare, after four decades of assiduous study of the Cartesian writings, that Descartes dissimulated the agreement of his views on religion with those of Hobbes, and that the God of Descartes is virtually identical with the God of Spinoza. In the Cartesian writ-

ings the most sustained and searching inquiry into the problems of mind and body is the *Passions of the Soul*, in which the abandonment of the substance doctrine has already been prepared by the latter half of the *Meditations* 6.

Midway in *Meditations* 6, Descartes ceases to speak of the substance doctrine and begins a fresh inquiry into the nature of man. He draws a threefold distinction between (a) things which only pertain to mind—the sphere of "thoughts" or consciousness, established by means of the radical doubt; (b) matters which only pertain to body, which prepares the first mention in the work of "laws of nature"; and (c) "those things given by God to me as a being composed of mind and body."[9] The concept of the compound here introduced is in no sense a metaphysical concept: it is not a compound of two substances, nor is it a substance itself. The compound has no metaphysical unity, nor any unity known by clear and distinct ideas, but only the experienced unity conferred on it by the sensation or feeling of pain and pleasure, especially pain. The judgment of unity inferred especially from pain is part of the "teaching of nature," and the compound, and only the compound, is the locus of the teaching of nature whose pedagogic instruments are pain and pleasure. Looking back upon the mind and body substances, it becomes clear that it is not only their theoretical incombinability that compels Descartes's step to the nonsubstantial compound; it is also the fact that the substances have been so defined that their combination would not permit but rather exclude an account of pleasure and pain as well as the passions. Since the *res cogitans* as thinking substance cannot, for example, become angry, but only doubt, infer, judge, reflect, and the like; and since the *res extensa* by itself is exhaustively characterized by the law of inertia and the laws of mechanical interaction and so cannot become angry; and since the compounding of such substances does not yield the least possibility of accounting for such phenomena as pleasure or pain and passions such as anger, the ground for Descartes's turn to a nonsubstantial compound becomes apparent.

The natural teaching inherent in the compound furnishes him with the general foundation in human nature of judgments about good and bad. "These perceptions of sense [have] been placed in me by nature to signify to my mind what things are beneficial or hurtful to the whole of which it forms a part."[10] This introduction of natural purposiveness is not compatible with nature as *res extensa*, the mechanism of body, from which purpose is excluded. Purpose is limited to the region of the compound, which is conceivable, if only on experienced and not on "clear and distinct" evidence, independently of what is known clearly and distinctly to belong to mind by itself, or body by itself. This triad enables us to say that the *Meditations* concludes with what we may call "regional ontologies" which are "metaphysically neutral" as regards substance.

This triad, and especially the compound, should not be regarded as some lapse from the "rationalism" of "clear and distinct ideas" but rather as precisely that which furnishes the mastery of nature with the basis for its distinction of means and ends. In this context the example of the dropsical patient of *Meditations* 6 is critical. From the standpoint of the mathematical science of nature, a body sick or a body healthy equally exhibits the laws of nature. But from the standpoint of the compound, that is, of human experience, a sick body is naturally defective and bad. Descartes makes no effort whatever to unify theoretically the conflict between the scientific concept of nature, which is neutral to good and bad, and the human experience of sickness which is bad by nature. Humanly experienced nature supplies the end, the goodness of health, to which only the scientific nature, in the form of medicine, conduces as the appropriate means. It is not the theoretical resolution of these antithetical concepts of nature but the preservation of the antithesis which makes possible the mastery of nature and the Cartesian philosophy altogether. The necessity of the triad for the structure of Cartesian philosophy must be remembered when one considers the attempts of the *Passions* to reformulate the relations of mind and body in a new version of the compound. The unification of the compound in terms of the operations or behavior of mind and body within "experience" is by no means the same as a theoretical unification of the compound with the other members of the triad. The disparateness or heterogeneity of the triad, it must be observed, appears only in the light of the demands of reason and is not an assertion about the nature of things. It is a conclusion fully in harmony with that rejection of the "speculative" quest for being already evident in the *humana sapientia* of the *Regulae*. "This knowledge is not the less science than that which exhibits the nature of the thing itself [*quae rei ipsum naturam exhibet*]" (*Regulae*, 37).

6

With these clarifications of Descartes's critique of tradition we can return to *Discourse* 6 and identify the assertion of mastery of nature there as belonging to the second of the three phases into which the project typically divides: programmatic announcement of the goal, achievement of theoretical basis, and technical implementation. In the programmatic phase, the arts are treated in terms of their historic content, the opposition to the powerful doctrines of the past is presented as a modification that is continuous with the old intentions, and the syncretic character of philosophy—its union with politics—is presented with reserve. When the laws of physics are discovered, the program comes forth into the light of day as an actualized hope, and the program is re-

vised to take account of more exact insight into its possibilities. The role of the arts as model becomes explicit at the same moment in which they begin to lose their autonomy by accepting principles from physics. "Practical philosophy" will know "the force and action" of "all the bodies that environ us as distinctly as we know the various métiers of our artisans" and "employ them in the same way" (*Discours*, 61–62). Medicine, mechanics, and moral wisdom issue forth as branches from physics, which is the trunk of the tree of philosophy (prefatory letter to the *Principles*). This metaphor is nevertheless somewhat misleading. The laws of mechanics are identical with those of physics, which Descartes envisages as identical with those of medicine, and medicine in *Discourse* 6 includes study of the dependence of the mind (*l'esprit*) on the temperament and organs of the body, as well as of bodily senescence. The effort to unify medicine, in this enlarged meaning, with moral wisdom would bring into harmony the means-end dualisms of certainty and utility, mathematical physics and mastery of nature.

The syncretic union of philosophy and politics, made explicit in *Discourse* 6, may be divided into its elements: (1) the public as well as the secular rulers of states are informed of the potential benefits, if only for future generations, of the transformed goal of philosophy; and (2) are advised that these benefits will become available only if scientific research, especially experimentation, is fostered and financed, and freedom of communication is permitted; (3) both the public and the heads of states are advised of the identity of those who must necessarily oppose the humanitarian project—namely, those who would condemn a Galileo, and in general defend the subordination of humanity to the powers of tradition; (4) the project of humanitarian mastery of nature common to philosophy or science and society nonetheless divides into a two-sided relationship, each with its duties and rights to benefit; (5) the new relationship is brought under the sanction of the "law" of benevolence; and finally, (6) the benevolence law must be supported by a framework of belief that explains the possibility of happiness, now for the first time within human power—a kind of "theodicy" that replaces the old framework of belief.

The benevolence of Descartes's project only superficially receives its justification in the law that obliges us to benefit others to the extent that it is in us. Descartes may have regarded this law as the core of that moral belief required in society at all times; certainly it is the only categorical moral obligation advanced anywhere in his writings. Yet its apparent universality is weakened by its restriction to the context of the benefits of mastery of nature. It is not mentioned in the provisional morality of *Discourse* 3 or in the many other contexts in which duty to others would seem pertinent. Our skepticism is aroused by the lack of any supporting argument or clarification of the basis or source of the law. In the various passages of *Discourse* 6 that

speak of obligation, the categorical status of the moral law is replaced by a hypothetical obligation, which may be summarized as follows. If the goal is desired—if humanity desires to receive the fruits of the mastery of nature—and if individuals desire to receive the honor and glory of benefiting humanity through that mastery of nature, then the means must be willed, the humanitarian project must be implemented. Although Descartes asserts that only those who accept this revised benevolence law have genuine virtue as distinct from mere seeming, it is better described as a precept of utilitarian hedonism than as a binding principle of moral virtue. Its force lies not in some known or received principle, but in the promise of satisfaction of desires and passions. Mastery of nature promises those benefits that all or most men and societies have always desired: the alleviation of toil, the provision of necessities always so hard won from the hands of a stepmotherly nature, the accumulation of the means of comfort and luxury, the elimination of disease, and the maximum possible postponement of mortality within human power. These benefits are as universally available to humanity as they are devoid of exacting duties or self-sacrifice. But mastery of nature promises as well a perfect moral wisdom which is peculiarly devoted to the requirements of the benefactors of humanity, the "strong and noble minds" who emulate Descartes and possess the passion or virtue of *générosité*.[11] Descartes apparently believed that he possessed a sufficient basis in his physics to supply the physiological basis for this virtue, the theme of *Passions*, Book 3. We must leave it at the assertion that he relies on a reformulation of ancient moral doctrines—Stoic, Aristotelian, and Epicurean—and does not utilize his physical principles to explain this highest virtue. Cartesian mastery of nature culminates in a premature attempt to pass on to the third phase of implementation.

7

The modern intention to master nature culminates in the problem of theodicy. This problem is invisible to many because they believe that mastery of nature is the work of science and scientific technology, as distinct from philosophy. But only seventeenth-century philosophy gave the humanitarian justification for mastery of nature, and commenced the destruction of its antecedent traditions which is often misleadingly called "secularization." This action antedates the subsequent distinction of philosophy and science by more than a century. Only seventeenth-century philosophy laid down the principles of the modern type of political society which became the agent of technological "progress"—by merging the goals of philosophy and politics in what we have

called "syncretic philosophy." Just the utilitarian hedonism of Bacon and Descartes made their project easily combinable with the enlightened despotism and the liberal politics of Hobbes and Locke. But syncretic philosophy cannot take responsibility for the material and spiritual well-being of society without confronting the necessity of society for the overarching framework of belief which is always, if in varying degree and form, a "theodicy." This responsibility is more clearly recognized if we divorce it from the classic theological formulations it received in the biblical tradition. "Theodicy" in the broad sense here employed means accounting for the relation between goodness and the expectation of happiness, and of evil and misfortune, in terms of human activity and the suprahuman whole, be it nature or history, in which man finds himself. Kant gave an almost perfect formulation of the problem of theodicy when he addressed not philosophers but humanity with his tripartite formulation: What can I know? What ought I to do? What may I hope?

No premodern philosopher believed it possible or necessary to accept and discharge the responsibility for supplying a theodicy to humanity, as distinct from the sect of philosophers. [The premodern philosopher] customarily supported the received religion while moderating certain of its features in the direction of the philosophic account of the whole, recognizing that religion supplies that account of the whole that sanctions morality, public and private, and satisfies an almost universal human need. For this reason, the published speech of the premodern philosophers is profoundly ambiguous: even a Lucretius, who taught that the gods of the *intermundia* do not care for humanity, praised Venus to the skies.

On the other hand, modern philosophies of the syncretic type, beginning with Bacon, and continuing most obviously with Leibniz, Kant, Hegel, Marx, and Nietzsche, acknowledge, if in varying forms, the responsibility for theodicy. In the seventeenth century it is often difficult to distinguish their theodicies from the Christian apologetic theodicies they sought to replace, so that the ambiguity of their writing reminds us of premodern philosophic rhetoric, although it is nonetheless ruled by the new humanitarian goal. In Descartes the need for a new version of theodicy is by no means as clear as in Bacon's *New Atlantis*; yet we must not forget his praise of that writing in the prefatory letters to the *Passions*. In the *Passions* he seeks to defend all the passions as by nature good if rightly understood. The quest for the mastery of nature, which implies that nature is hostile, runs counter to that benevolence of nature, which even mastery of nature must premise if happiness is to be attainable through man's own natural powers, and within a natural whole that can never be eliminated. Only in the eighteenth century was it fully realized that modern scientific nature cannot be combined with an essentially premodern doctrine of the benevolence of nature, especially if

nature in itself is not intelligible, as Kant perceived. After Kant's attempt to relocate the problem of theodicy to the plane of morality, it was translated onto the plane of history by Hegel and his successors, where it found a resolution so long as history could be understood as exhibiting an intelligible pattern or *telos*, or until Nietzsche. The "death of God" may be regarded not only in terms of Christianity but as the failure of modern syncretic philosophy to replace it with a new theodicy: what Zarathustra proposes is a new goal for humanity. The problem of nihilism, pervasive of all strata of society, cannot even be correctly stated unless it is recognized as the failure of modern syncretic philosophy which believed it possible to undertake the care of humanity through the mastery of nature.

NOTES

"Descartes and Mastery of Nature," *Organism, Medicine, and Metaphysics*, ed. S. F. Spicker (Dordrecht: D. Reidel, 1978), 201–23. Reprinted with kind permission from Kluwer Academic Publishers.

1. René Descartes, *Discours de la méthode, texte et commentaire*, ed. E. Gilson (Paris: J. Vrin, 1962), 61–62.
2. Hans Jonas, *Philosophical Essays: From Ancient Creed to Technological Man* (Englewood Cliffs, NJ: Prentice-Hall, 1974), 48.
3. Francis Bacon, *The Advancement of Learning*, ed. G. W. Kitchin (London: J. M. Dent and Sons, Ltd., 1915), 34.
4. Francis Bacon, *The New Organon and Related Writings*, trans. Fulton H. Anderson (Indianapolis, IN: Bobbs-Merrill, 1960), 39, 118. *New Organon* 1.3, 129; *Works* 1:157, 222; 4:47, 114.
5. *Valerius Terminus of the Interpretation of Nature*, *Works* 3:248.
6. René Descartes, *Regulae ad directionem ingenii*, ed. Henri Gouhier (Paris: J. Vrin, 1946), 2.
7. Blaise Pascal, *Pensées et opuscules*, ed. L. Brunschvicq (Paris: Librarie Hachette, 1951), 361.
8. AT 7:9; CSM 2:8.
9. AT 7:82; CSM 2:57.
10. AT 7:83; CSM 2:57.
11. *Passions of the Soul* 3.153; AT 11:445–46; CSM 1:384.

Chapter Eight

The Finitude of Descartes's Evil Genius

At the present stage of Cartesian studies, inquiry into the nature of Cartesian doubt remains impeded by the familiar view that it is intended by Descartes to be "universal doubt." The conclusive evidence that doubt is intended to be universal is customarily found in the omnipotence of the being who is the ultimate *ratio dubitandi*. In the well-known argument of Cartesian doubt in *Meditations* 1–2, God, who may possibly be evil, is replaced by the supposition of an Evil Genius. Yet God and the Evil Genius are both omnipotent: this view is unanimously held, so far as we have been able to ascertain, by the distinguished Cartesian scholars of recent decades. No issue has been raised about the equivalence of the powers of God and the Evil Genius, and hence no distinction drawn concerning what is rendered dubitable by the one and the other. The equivalence thesis is found in the two recent English studies of L. J. Beck and Anthony Kenny; it is held by Gouhier, Alquié, and Gueroult; it is that of leading German and American interpretations, including the most recent one by Harry G. Frankfurt.[1] It is essential not only for the prevalent interpretations of the *cogito* and the doctrine of consciousness, but also for the entire later course of the *Meditations* as well. On this view, it becomes inevitable to hold that Cartesian doubt seeks, as its general intention, to establish by universal doubt a presuppositionless first principle.

In this note we seek to establish three points. First, mathematics is not doubted in Cartesian doubt. Some evidence for this exemption is that no form of mathematics is even mentioned after the introduction of the Evil Genius in *Meditations* 1 and prior to the *cogito* in *Meditations* 2. Second, the texts of the *Meditations* by no means establish that the Evil Genius is omnipotent, but imply rather his finitude. The parallel account of doubt in *Principles* 1 corroborates these points. Finally, the finitude of the power of the Evil Genius is

demanded by the argument: if the Evil Genius were omnipotent, the law of noncontradiction would be suspended, and all further reasoning would have to cease. Hence the conclusion can be established that Cartesian doubt was never meant to be universal, and the endless cavils about Descartes's procedure that are based on that assumption can be laid aside. The way is opened for the presuppositions of Cartesian doubt to become a possible and necessary region of inquiry, precisely from Descartes's own standpoint.

1. God, "who can do everything," enters *Meditations* 1 as a reason for doubting all things, especially arithmetic and geometry; towards the end of *Meditations* 1 he is withdrawn as a *ratio dubitandi* and replaced by the Evil Genius. Since God is omnipotent, it is plausible and customary to assume that his replacement is also omnipotent yet precisely this assumption is at issue. If the range of what is made dubitable by the Evil Genius is not universal, his omnipotence is questionable. This range is indicated by Descartes in two ways: (1) by the specific list of dubitables itemized immediately after the entry of the Evil Genius in *Meditations* 1; and (2) by the general review of the dubitable that precedes the *cogito* in *Meditations* 2. The specific list divides into two parts. First, Descartes asserts that "the heaven, air, earth, colors, figures, sounds, and all external things" are only "the mockeries of dreams." Second, he says that he will consider himself as having "no hands, no eyes, no flesh, no blood, no senses."[2] Mathematics is absent; the dubitable is exclusively the external, or more precisely, the bodily, including one's own body. The summary review (2) of the dubitable in *Meditations* 2 is also silent regarding mathematics, arithmetic, or geometry; the Evil Genius is again mentioned, but not mathematics. Descartes does not say that the Evil Genius renders all things dubitable, but only that "he employs all his effort to deceive me always."[3]

2. Our first point, that the doubt exempts mathematics, would remain problematic without the second, that the Evil Genius is not omnipotent. For if evil and omnipotent, the Genius would cast everything, including mathematics, into dubiety. Since God is unmistakably omnipotent, it is necessary to compare the several descriptions of the power of God and the Evil Genius, in the Latin and French versions, to establish their sameness or difference. In the Latin original, the power of God is described in three ways: (1) as a being *qui potest omnia*, (2) as *omnipotens*, (3) as *summe potens*.[4] The power of the Evil Genius, thrice mentioned in the *Meditations*, is rendered only by the third of these ways, by *summe potens* on two occasions, and *potentissimus* on the third.[5] Thus (1) and (2), which lack evident ambiguity, are used only to designate God and never the Evil Genius. On the other hand, (3) employs the superlative of the adverb or adjective, which is notably ambiguous: it may mean either a very high degree of power, or the highest. If Descartes had sought to

present the Evil Genius as omnipotent, he could have employed one of the unambiguous locutions of (1) or (2). The limitation of the Evil Genius becomes clearer in the French version. We may legitimately appeal to the first French translation of the *Meditations* as an authoritative version since it was read, approved, and, on occasion, "retouchée par Descartes."[6] For this version in no case uses the same phrases to describe the power of the Evil Genius and of God, and in no instance does it imply the omnipotence of the Evil Genius. The Evil Genius is "non moins rusé et trompeur que puissant," "très puissant," and "extrêmement puissant";[7] while God, "qui peut tout," is "la souveraine puissance," and "tout puissant";[8] these phrases exhaust the cases in which the power of either is described.

The nonuniversality of Cartesian doubt may be established in two closely related ways—either by specific exemptions, for example, mathematics, or the finitude of the power of the ultimate *ratio dubitandi*. We now consider the compressed treatment of doubt in *Principles* 1.5–7,[9] parallel to that of *Meditations* 1–2. In *Principles* 1.5 mathematics may be doubted because "God who created us can do all that he desires." In *Principles* 1.6 "he who has created us" may be "all-powerful" and seek to deceive us. This being must be understood to be God, for the Evil Genius is never mentioned in the *Principles*; moreover, the power of creation is never imputed to the Evil Genius in the descriptions of the *Meditations*. In *Principles* 1.7 God is removed from the argument of doubt, just as in *Meditations* 1, but he is not replaced and the Evil Genius is wholly absent. In contrast to the *Meditations*, the doubt proceeds on explicitly atheistic premises: "we easily suppose that there is no God." In *Principles* 1.7 we find a brief summary of the total range of the dubitable, but it does not mention or imply mathematics as dubitable. By no sentence or phrase does *Principles* 1.7 suggest that doubt is universal. As in *Meditations* 1–2 the sphere of the dubitable is restricted to the external in general, and in particular the bodily, including the body of the doubter. It may be objected, however, that Descartes in *Principles* 1.7 says, "this conclusion, *I think, therefore I am*, is the first and most certain of all that occurs to one who philosophizes in an orderly way." But in *Principles* 1.10 he repeats this same sentence and qualifies it: "I did not for all that deny that we must first of all know *what is knowledge, what is existence,* and *what is certainty*, and that *in order to think we must be*, and such like." He did not think these exemptions from the doubt "worthy of being put on record" because "these are notions of the simplest possible kind, which of themselves give us no knowledge of anything that exists."[10] The *cogito*, then, is the first and most certain among propositions that assert existence. We may therefore include among the exemptions from Cartesian doubt all other propositions that do not assert existence, a class which must include the "common notions" of *Principles* 1.13

and what Descartes calls "eternal truths," "common notions," or "axioms" in *Principles* 1.49. This procedure is also legitimated by the fact that the one proposition explicitly exempted from doubt in *Principles* 1.10 is listed as an "eternal truth" in *Principles* 1.49:[11] that "in order to think we must be" is the same assertion as "that he who thinks must exist while he thinks." Moreover, *Principles* 1.49 lists the law of noncontradiction ("it is impossible that the same thing can be and not be at the same time") as an eternal truth; its exemption from the dubitable is confirmed by the 2nd *Replies*.[12]

On the basis of these more authoritative versions of the Cartesian metaphysics in the *Meditations* and *Principles*, we may safely discount *Discourse* 4, in which mathematics is apparently doubted. Whereas in the former writings only an omnipotent being can be a *ratio dubitandi* for mathematics, in the latter Descartes argues, with evident irony, that if some men sometimes make mistakes even in the simplest matters of geometry, he, being also a man, should reject all that he had ever accepted as demonstration.[13] In summary, we find this general result in the *Principles* and the *Meditations* (including the *Replies* of Descartes to *Objections*, and even all the *Objections* of Descartes's critics except those of Bourdin):[14] if the omnipotent God is a *ratio dubitandi*, mathematics is dubitable; and if mathematics is dubitable, the Evil Genius is not the *ratio dubitandi*. God, however, is removed from both the *Meditations* and the *Principles* as a *ratio dubitandi* prior to the *cogito*. Hence mathematics is not doubted because only an omnipotent being could make its certainties dubitable. Moreover, as we have seen, what is exempt from doubt is not limited to mathematics, but includes the entire class of eternal truths and therefore the law of noncontradiction.

3. Finally, if the Evil Genius were omnipotent, he would presumably have the same capacity as the omnipotent God. Or if this is alleged not to be the case, some Cartesian text or consideration would have to be adduced to establish that the meaning of omnipotence differs in the two cases. What then would be the consequence of an omnipotent Evil Genius as a *ratio dubitandi* within the structure of Cartesian doubt? The omnipotence of God implies his capacity to deceive as regards the sum of two plus three, in *Meditations* 1;[15] the sum could be other than five. Omnipotence thus implies the power to make true what is self-contradictory to human reason, or to suspend the law of noncontradiction, as Descartes makes evident in *Meditations* 3.[16] In the *Meditations*, as distinct from other Cartesian texts, this extraordinary capacity belongs to God in virtue of one of his attributes taken by itself, that is, the divine power, will, or freedom; it does not belong to the nature of God in its entirety, or as regards all his attributes taken together. For in the *Meditations*, in contrast with the 6th *Replies* and other texts,[17] the omnipotent power or freedom of God is exercised only in accordance with the divine goodness. Be-

cause Descartes claims to demonstrate the goodness of God in *Meditations* 3–4 he can assert, at the beginning of *Meditations* 6, "I have never judged that anything was impossible for God to do, unless I found a contradiction in being able to conceive it clearly."[18] In sum, whereas an omnipotent being, in virtue of his power alone, could suspend the law of noncontradiction, only an omnipotent being who is evil would do so. Hence, as regards the context of Cartesian doubt, God may be replaced, as a *ratio dubitandi*, by a Genius who is evil, but not by one who is omnipotent. Otherwise, the further course of Cartesian doubt, as a reasoning inquiry, would be impossible. Only if the Evil Genius is of finite power can the doubt or the *cogito* be any sort of argument whatever. It is therefore inconsistent for interpreters to maintain—as all do explicitly or implicitly—that the Evil Genius is omnipotent, but also to proceed to inquire what species of argument the *cogito* might be, whether syllogism, immediate inference, or whatever—as most indeed do. The finitude of the Evil Genius is thus Descartes's acknowledgment that the founding argument of Cartesian doubt prior to the *cogito* is not meant to be universal. It is the premise on which the set of presuppositions of doubt, as Descartes understood it, becomes a region for inquiry.

The finitude of the Evil Genius enables us to remove a problem that has frequently clouded the structure of the *Meditations*. If, on the common assumption, the *cogito* triumphs over an omnipotent *ratio dubitandi* in *Meditations* 2, why does Descartes reassert an omnipotent *ratio dubitandi* near the beginning of *Meditations* 3? Neither the first, the Evil Genius, nor the second, God, is known to be good: is not the jeopardy to knowledge the same? This difficulty has led interpreters to attempt distinctions[19] that reduce the scope of what the Evil Genius makes dubious, as contrasted with what God makes dubious, when God reenters the argument as a *ratio dubitandi* in *Meditations* 3. But if the *cogito* had vanquished an omnipotent and actually Evil Genius in *Meditations* 2, it surely need fear no threat from an omnipotent and possibly evil God in *Meditations* 3.

In conclusion we may remark that the above is only the first preliminary to an analysis of the profound meaning of the Evil Genius who begins his career in the *Olympica* dream manuscript.[20] In the *Meditations* he reappears almost immediately after the *cogito*, an event often neglected, but explicable on our view that he renders dubitable only the bodily sphere.

NOTES

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with permission of the Johns Hopkins University Press. This essay was reprinted in *Eternal Truths and the Cartesian Circle*, ed. Willis Doney (New York and London: Garland, 1987), 131–36.

1. The equivalence thesis is usually held explicitly; it is maintained implicitly by those who fail to discuss the issue, but say that mathematics is doubted prior to the *cogito*. See H. Gouhier, *La Pensée métaphysique de Descartes* (Paris: J. Vrin, 1962), 118; F. Alquié, *La Découverte métaphysique de l'homme chez Descartes* (Paris: PUF, 1950), 176; M. Gueroult, *Descartes selon l'ordre des raisons,* 2 vols. (Paris: Aubier, 1953), 1:41ff.; René Descartes, *Discours de la méthode: texte et commentaire*, ed. E. Gilson, (Paris: J. Vrin, 1962), 290; L. J. Beck, *The Metaphysics of Descartes* (Oxford: Oxford University Press, 1965), 72, 77; Anthony Kenny, *Descartes: A Study of His Philosophy* (New York: Random House, 1968), 35–36; Harry G. Frankfurt, *Demons, Dreamers, and Madmen: The Defense of Reason in Descartes's Meditations* (New York: Bobbs-Merrill, 1970), 86, 92, 99. It is contained in the influential study of J. Hintikka, "*Cogito, ergo sum*: Inference or Performance?" *Philosophical Review* 71 (1962): 9. G. Krüger identifies God and the Evil Genius ("Gott als ein 'genius malignus'") in *Die Herkunft des philosophischen Selbstbewusstseins* (Darmstadt: Wissenschaftliche Buchgesellschaft, 1962), 23, 32. See, however, G. W. Leibniz, *Théodicée* 186, and letter (to Malebranche?) in *Malebranche et Leibniz: relations personnelles*, ed. A. Robinet (Paris: 1937), 246.

2. AT 7:22–23; HR 1:148; CSM 2:15.

3. AT 7:24–25; HR 1:149–50; CSM 2:15.

4. AT 7:21, 40, 45. With (3) should be classed "haec praeconcepta de summa Dei potentia opinio," *Meditations* 3; AT 7:36.

5. AT 7:22, 25, 26.

6. René Descartes, *Meditationes de prima philosophia, Méditations métaphysiques*, ed G. Rodis-Lewis (Paris: J. Vrin, 1967), xi–xii.

7. AT 9:17, 19, 21.

8. AT 9:16, 28, 32, 36. References to an "author of my being" who may deceive, as in *Meditations* 6 (AT 7:77; 9:61), cannot refer to the Evil Genius since this phrase is never applied to him when he is explicitly mentioned, in either the Latin or the French version.

9. AT 8:6–7.

10. AT 8:8.

11. AT 8:9–10, 8, 23–24.

12. AT 7:145–46. Descartes here assigns the same status to both the *cogito* and the law of noncontradiction, or to "quod ego, dum cogito, existam" and "quae semel facta sunt, infecta esse non possint." See M. Heidegger, *Die Frage nach dem Ding* (Tübingen: Max Niemeyer, 1962), 83.

13. AT 6:32. In 2nd *Replies* (AT 7:146) "no difficulty arises by the objection that we have often found that others have been deceived in matters in which they believed they had knowledge as plain as daylight." For such deception occurs only if knowledge is drawn from the senses and not "the intellect alone."

14. In the 4th *Objections* Arnauld quotes Descartes's description of the Evil Genius as *summe potens* (AT 7:198), which is rendered in the translation as *très puissant* (AT 9:154), although in the English mistranslated as "all powerful" (HR 2:80). [In CSM 2:139, "of supreme power" Ed.] In 4th *Replies* Descartes mentions the hyperbolic doubts of *Meditations* 1 as inclusive of mathematics, but refers the basis of the doubts to "the author of my origin," knowledge of which is as yet not available. Bourdin in 7th *Objections* refers the doubt of mathematics to the Evil Genius (AT 7:471), but Descartes does not acknowledge this basis (AT 7:474–76). In *Recherche de la vérité*, prior to the *cogito* there is no doubt of mathematics, confirming our general thesis, although God is mentioned as *ratio dubitandi*; the Evil Genius is absent.

15. AT 7:21; HR 1:147; CSM 2:105.

16. AT 7:36; HR 1:158–59; CSM 2:25.

17. 6th *Replies*, AT 7:431–33; HR 2:248–49; CSM 2:291–92; letters to Mersenne, 15 April, 6 and 27 May 1630, AT 1:145–46, 149–50, 151–53; letter to Mesland, 2 May 1644, AT 4:118–19.

18. AT 7:71; HR 1:185; CSM 2:50.

19. Kenny maintains that both God and the Evil Genius are omnipotent and hence "the two hypotheses do not differ in any respect of epistemological significance," yet attempts a distinction between a "first-order doubt" in *Meditations* 1–2 and a "second-order doubt" in *Meditations* 3 (*Descartes*, 35, 183–84). Similarly, A. Gewirth's distinction between a "methodological doubt" and a "metaphysical doubt" has the difficulty that both are based on an omnipotent *ratio dubitandi* that is not known to be good and hence both must include deception in every possible respect ("The Cartesian Circle," *Philosophical Review* 50 [1941]: 368–95, esp. 373); cf. L. J. Beck, 161.

20. See my "Descartes's *Olympica*," *Social Research* 28, no. 2 (summer 1961): 171–204. [Reprinted herein. *Ed.*]

Chapter Nine

Cartesian Rationalism and Eternal Truths

It has long been recognized that the metaphysics of the *Meditations* is in strong tension with a rival Cartesian doctrine. This is the doctrine of the divine creation of eternal truths. In the *Meditations* the intention to establish foundations of the sciences is accomplished by rational proofs of the existence and veracity of God. The rationalism of this metaphysics is evident especially from Descartes's appeal to the principle of noncontradiction in *Meditations* 6: "I have never judged that something could not be made by [God] except on the grounds that there would be a contradiction in my perceiving it distinctly."[1]

But in the divine creation doctrine, God is not limited by the principle of noncontradiction. "God cannot have been determined to make it true that contradictories cannot be true together, and therefore . . . he could have done the opposite."[2] In the *Meditations* God is the guarantor of the necessary truths of arithmetic and geometry and all the other sciences. We are compelled to ask: can this be the same God for whom, according to the divine creation doctrine, the truths of mathematics have no necessity at all?

This conflict within Cartesianism was recognized by Leibniz and others of his age, as well as by Gilson and other distinguished scholars of ours. What is distinctively new in the last decade is the growing recognition that this problem is internal to the text of the *Meditations* proper. It is no longer seen as a problem of the relations between the metaphysics of the six *Meditations* proper, on the one hand, and the divine creation doctrine as found in the 5th and 6th *Replies*, private letters, and the Burman manuscript, on the other hand.[3] It is of course true that we do have major studies, for example, those of Harry Frankfurt and E. M. Curley, which start from the side of the divine creation doctrine and seek to establish the relationship be-

tween it and the metaphysics of the *Meditations*.[4] But these studies are not based on the assumption, or on showing from the text, that the divine creation doctrine is present, and present significantly, within the six *Meditations* proper. Some indeed have thought that the divine deceiver hypothesis implied the divine creation doctrine; and Gueroult considered that possibility and believed he had refuted it.[5] It is perhaps with Margaret Wilson's *Descartes* of 1978, and with Jean-Luc Marion's *Sur la théologie blanche de Descartes* of 1981 that the creation doctrine becomes fully explicit as a doctrinal factor within the six *Meditations* proper.[6] I am not at all sure when this tendency began; it has always been latent, and always fraught with remarkable consequences.

What then is the divine creation doctrine? I shall be simple and schematic in this brief summary. The doctrine is that the omnipotence of God, or the will of God, is utterly unlimited in creation. The sphere of created being includes the eternal truths. Descartes assumes that the eternal truths, for example, of mathematics, are either independent of God, or dependent on God. There is no third possibility mentioned by Descartes, such as that they belong to God's essence. If they were independent of God, they would limit the power of God, which would destroy his omnipotence. The eternal truths are dependent on God in this sense: they were created by him, and he was entirely free to create or not to create them, as with the rest of the creation, as well as to create them other than he did. Thus, the sum of two plus three could have been any number. Once he created them, however, they are unchanging because God is immutable. Accordingly what is understood, for example, in mathematics, as a necessary truth has instead the status of a contingent truth. Finally, as already noted, God's power is not confined by the principle of noncontradiction.[7]

1

Is this doctrine present in the *Meditations* proper? If so, it is only as an implied, not an explicit, doctrine. The major question is whether the treatment of omnipotence in the work implies the doctrine of omnipotence of the divine creation doctrine. In *Meditations* 1 Descartes refers to an "old opinion" of his that there is a God who can do everything, and by whom he was created such as he is. It may be, we remember, that this omnipotent God could deceive Descartes every time he adds two and three or counts the sides of a square. Wilson asked, does this account of a possibly deceiving God in *Meditations* 1 logically imply the divine creation doctrine? and answered in the negative.[8] For example, assume that two plus three equals five is a necessary truth. God

could have deceived Descartes into thinking that the sum is two, or four, or six without its being in his power to make them other than they are; he could have deployed other means to accomplish that deception. So it is not necessary to infer that Descartes had the divine creation doctrine in mind. Nevertheless Wilson goes on to observe that if the judgment that two plus three equals five is a necessary truth, then "the deceiving God hypothesis would at least provide grounds for calling into question whatever assurance I might initially feel that the eternal truths are beyond God's power."[9] Stated differently, the judgment that two plus three equals five is a necessary truth could be falsified by the divine creation doctrine, according to which it is a contingent truth. To sum up, the divine deceiver hypothesis of *Meditations* 1 permits but does not require the possibility that God could have created the eternal truths as in fact other in content than those he did create.

But we must also consider the rest of the deceiver argument. As we push further into the theology of the doubt in *Meditations* 1, we discover a fundamental disagreement with the divine creation doctrine in one important respect. Within the deceiving God hypothesis, Descartes proceeds from the question of power to the question of goodness. Assuming that God has the power to deceive us when we think the mathematical truths as necessary, would not the goodness of God exclude his deceiving us? Descartes now introduces a premise that he believes, or appears to believe, namely, that it would be inconsistent with the goodness of God for him to allow us to be deceived even occasionally. My point here is not that this premise is morally open to question, which it surely is. The point rather is that the functioning of the premise in the argument presupposes the logic of noncontradiction. The assumption being made is that certain actions of God would be in contradiction with his goodness, hence impossible. It is in this respect that the theology of doubt in *Meditations* 1 is in conflict with that of the divine creation doctrine. According to the creation doctrine, what God does, or does not do, in the creation has nothing to do with its being good or bad; rather what God does is good solely for the reason that he does it.[10] On the creation doctrine, the good is not prior, in any sense of prior, to the divine volition in the creation. But in the theology of doubt in *Meditations* 1, the good must be prior, in some sense of prior, to the divine will in the creation, and the will cannot contradict that goodness.

To sum up, the hypothesis of the deceiving God in *Meditations* 1 is made up of two discrepant theological elements. The omnipotence premise is in harmony with, but not logically derivable from, the creation doctrine, while the goodness premise is conceived, in its function, as implicitly in conflict with the creation doctrine. In general, the deceiver hypothesis combines the certainty of the omnipotence of God with the uncertainty of his goodness. But

looked at more carefully, it is the mode of being of this omnipotence that is unclear—is it the same as that of the creation doctrine?—while that of the divine goodness is quite clear—it establishes a limit to the divine omnipotence. Accordingly, we leave the deceiving deity hypothesis in *Meditations* 1 with the impression that if Descartes can establish the goodness of God he can remove the threat to knowledge arising from the divine omnipotence. This conviction that goodness can limit omnipotence is a major assumption of the metaphysical argument of the *Meditations*. But whether goodness can limit omnipotence depends entirely on whether the concept of omnipotence Descartes utilizes in *Meditations* 3 is that of the divine creation doctrine.

2

In *Meditations* 3 the threat of an omnipotent deceiver is reintroduced, as we know. The formulation of the hypothesis is much more explicit than that of *Meditations* 1 in key respects. The supposition made is that an omnipotent God could do three things.[11] He could cause Descartes to be nothing while he thinks that he is. Second, he could some day cause it to be true that Descartes has never been, though it be now true that he is. Third, he could cause it to be true that two and three make more or less than five. Finally, Descartes sums up by saying that God could cause to be true anything in which he sees a manifest contradiction. In *Meditations* 1 we could not be sure the deceiving God was unconstrained by the principle of noncontradiction; that appeared to be only one of the possible ways by which the deception could be managed. That obscurity is now removed in the formulation of *Meditations* 3. Similarly, in *Meditations* 1 we could not be sure that God's deceiving us when judging the sum of two plus three implied the power he possesses under the divine creation doctrine, that is to say, to make the sum more or less than five; again that obscurity vanishes in the formulation of *Meditations* 3.

From this passage in *Meditations* 3 it is evident that God has the power to create the eternal truths, and is unlimited by the principle of noncontradiction, as in the divine creation doctrine. There is nothing in this hypothesis of *Meditations* 3 that is not implied in the divine creation doctrine, and nothing in that doctrine that is inconsistent with the deceiver hypothesis of *Meditations* 3. It is surely correct for Wilson to take the position that it is the concept of God in the divine creation doctrine that we meet in the deceiver hypothesis of *Meditations* 3.[12] The conclusion that follows for the remaining structure of the *Meditations* is that it is the divine creation doctrine, as represented in the deceiver hypothesis, that the metaphysical teaching of the work must overcome. According to the standard interpretation of the *Meditations*, Descartes

proves that God exists and is a perfect being; the deceiver hypothesis is thereby overcome. More fully stated, the God who triumphs over the deceiver hypothesis can guarantee the truth of clear and distinct ideas, and the existence of the world, because it would be contradictory to his goodness ever to deceive the human knower.

But now the difficulties of the standard interpretation appear. The first is that what the theological metaphysics of the *Meditations* triumphs over is just Descartes's own other theology—the theology of the divine creation doctrine. Second, the omnipotent deceiver of the divine creation doctrine, who is not limited by the principle of noncontradiction or any divine attribute such as goodness, cannot possibly be overcome by the theological metaphysics of the *Meditations*, which uses precisely those limits. Third, this theological metaphysics which allegedly triumphs in the *Meditations* is in turn vanquished by the divine creation doctrine, which Descartes asserts in the 6th *Replies*.

This sequence may seem too complicated to grasp stated in this way. So let us abstract from the sequence and state the problem in a single sentence: Descartes accepted and advocated the truth of two incombinable theological doctrines in the same writing. We are entitled to say "in the same writing," namely, the *Meditations*, although he asserts the divine creation doctrine initially only in the guise of the hypothesis of the divine deceiver, because he asserts it in a nonhypothetical manner in the 6th *Replies*. By asserting its truth in the 6th *Replies*, he deprives the deceiver hypothesis of its hypothetical character, and makes it the vehicle of a genuine theological alternative.

Thus a basic incoherence enters into the interpretation of the *Meditations* once we admit the divine creation doctrine as a legitimate player, so to speak, within the metaphysical alternatives of the *Meditations*. It is evident, from the foregoing, that we agree with Frankfurt that "the standard interpretation [of Descartes's metaphysics] is untenable . . . it fails to take sufficient account of the radical implications of Descartes's conception of divine omnipotence."[13] But it is hard to accept Frankfurt's attempt to bring coherence into the Cartesian philosophy by distinguishing two separate domains of discourse, one being the rational metaphysics of the *Meditations*, the other being the transrational divine creation doctrine. Such a separation does not fit the character of the *Meditations*, in which we find not separation but confrontation, with one doctrine laying down a challenge, by means of the deceiver hypothesis, which is then met by the other. Moreover, it does not take account of an anomaly deeper than any yet mentioned. Why does Descartes permit the divine creation theology, for which he never attempts to give a philosophical justification, either in private or

in any publication, to enter into competition with, and to supersede, the rationally argued metaphysics of the *Meditations*? This anomaly becomes apparent when one turns from the *Meditations* proper to the 6th *Replies*, and then seeks in vain, there and throughout the Cartesian corpus, for a justification for its divine creation theology.

A coherent interpretation of the *Meditations* must acknowledge the following: (1) the copresence of the two doctrines under discussion; (2) the incombinability of the two doctrines; (3) the priority of the rational metaphysics over the divine creation doctrine; and it must, in addition, offer an explanation of Descartes's purposes in deploying these two incombinable doctrines. We propose the following approach. What is the intention of Descartes in the *Meditations*? The intention of Descartes is not necessarily identical with his goal in the *Meditations*. Still it is reasonable to begin with what he asserts as his intention in the *Meditations*. However, we find Descartes asserting two quite distinct intentions in the book: the apologetic intention and the foundational intention. The foundational intention has been the almost exclusive center of interest in recent times, but the mere fact that Descartes also offers the *Meditations* as serving an apologetic intention shows that the book cannot be understood adequately if we simply ignore the apologetics. There is a correspondence, we shall argue, between the two theological doctrines we have been considering and the two intentions.

The peculiarity of the apologetics is that it must be both rational and transrational. The infidel, Descartes claims, demands that proofs be exclusively in the mode of natural reason. Since the foundational intention also utilizes the mode of natural reason, it is possible for the two intentions to share doctrines. By natural reason, Descartes announces in the Sorbonne letter, he will prove that God exists and that the soul does not perish with the body, and thereby persuade the infidel of religion and moral virtue.

But the apologetics cannot remain within the confines of natural reason and persuade men of the Christian religion. For, as Descartes makes plain in the letter to the Sorbonne, the Christian religion has its foundation in faith primarily and not in reason. The apologetics must therefore show the limits of reason; it must show that the exclusive adherence to reason is problematic. The *Meditations*, insofar as it seeks foundations of the sciences, will adhere exclusively to reason; and insofar as it is apologetics, it will show that exclusive adherence to reason is problematic. Foundationalist metaphysics is primarily rationalist doctrine of God; apologetics must from the outset show that the rational doctrine of God does not attain the truth about God, or at least not to the complete truth about God. The rational metaphysics does not need the

incomprehensibility of God; what it requires is comprehensibility. The apologetic intention stresses the incomprehensibility of God, starting in the preface to the reader, but most obtrusively in the heart of the theology of *Meditations* 3.[14] But if the incomprehensibility arises from the infinity of God—an infinity that reason itself has established—such an incomprehensibility does not shake the authority of reason. Hence the primary function of challenging the authority of reason arises from the deceiver hypothesis, that is, the divine creation doctrine.

From the first moment Descartes speaks of the divine creation doctrine, in the first Mersenne letter of 1630, one ground for accepting the doctrine is that it results in the incomprehensibility of God. "The very fact that we judge [the grandeur of God to be] incomprehensible makes us esteem it the more greatly."[15] Incomprehensibility, to repeat, is not a virtue of a doctrine from the standpoint of metaphysics, but it is indispensable for apologetics. The incomprehensibility of God is fully guaranteed only by a doctrine that denies the capacity of reason to be the arbiter of statements about God. The divine creation doctrine accomplishes this function by asserting that God is wholly beyond the principle of noncontradiction. There can be no proofs of the existence of such a God, if he is wholly beyond the principle of reason. Descartes never offered any proofs of the doctrine of the creation of eternal truths. It is as baseless in the evidence of reason as it is inimical to the use of reason. In *Meditations* 1 the deceiving God hypothesis enters the discussion on the basis of an opinion; but it is not an opinion original with Descartes; it is an old opinion, *vetus opinio*.

If it is correct to say that the divine creation doctrine is part of Descartes's apologetics, the status of that apologetics becomes a critical question. A new difficulty faces us: the Christian apologetics of the *Meditations* is in conflict with another Cartesian apologetics—the secular, humanitarian apologetics of the *Discourse on Method*. We easily recall the notable passage of *Discourse* 6 in which Descartes announces the new goal of philosophy as the mastery of nature and presents a vision of a new humanity that finds its happiness in this life on this earth through the fruits of philosophy. If the status of the divine creation doctrine depends on the status of the Christian apologetics, and that of the Christian apologetics on its relation to the secular apologetics, then it is to the *Discourse on Method* that we must turn for a final clarification. For the *Discourse on Method* alone among the Cartesian writings contains both the Christian apologetics and the secular, humanitarian apologetics. It therefore is the ultimate court of appeal for the divine creation doctrine. The *Discourse*, I would venture to assert, is the truly comprehensive Cartesian writing.

NOTES

"Cartesian Rationalism and Eternal Truths" was a lecture delivered at the International Conference on the 350th anniversary of Descartes's *Discourse on Method*, April 15–17, 1988, San Jose, California.

1. *Meditations* 6; AT 7:79; CSM 2:50.
2. To Mesland, 2 May 1644; AT 4:118. English translation in *Descartes: Philosophical Letters*, trans. and ed. Anthony Kenny (Oxford: Oxford University Press, 1970), 151.
3. *Conversations with Burman*, AT 5:146–79.
4. Harry Frankfurt, "Descartes on the Creation of the Eternal Truths," *The Philosophical Review* 1 (1977): 36–57; reprinted in *Eternal Truths and the Cartesian Circle*, ed. Willis Doney (New York and London: Garland, 1987), 222–43. E. M. Curley, "Descartes on the Creation of the Eternal Truths," *The Philosophical Review* 4 (1984): 569–97; reprinted in Doney, 341–70.
5. Martial Gueroult, *Descartes selon l'ordre des raisons*, 2 vols. (Paris: Aubier, 1953), 1:42.
6. Margaret D. Wilson, *Descartes* (London, Henley and Boston: Routledge and Kegan Paul, 1978); Jean-Luc Marion, *Sur la théologie blanche de Descartes* (Paris: PUF, 1981).
7. For a list of Descartes's texts containing the doctrine, see Marion, 270.
8. Wilson, 33–34.
9. Wilson, 34.
10. 6th *Replies*, AT 7:431–33; CSM 2:291–92.
11. 6th *Replies*, AT 7:36; CSM 2:25.
12. Wilson, 120ff.
13. Frankfurt, 52.
14. AT 7:46; CSM 2:32.
15. AT 1:145; Kenny, 11.

Chapter Ten

The "Teaching of Nature" in Descartes's Soul Doctrine

Descartes initiated the modern interpretation of the soul in the *Meditations*, as is generally conceded. Of all Cartesian doctrines, his account of the soul has received the least examination. One reason for this neglect is that the major changes he effected have become taken for granted, even by his critics. According to the dominant premodern tradition of Socrates, Plato, Aristotle, and the medievals, the soul is responsible for two functions, or classes of function—life or motion, and awareness, discerning, or thinking. This premodern notion of the soul was remarkably neutral to metaphysical differences: even Lucretius attributed the two functions to *una natura*, the union of *animus* and *anima*. The two-function theory was usually combined with the assertion that the soul has parts, standing in various relations of rule and subordination—best known to us perhaps from Plato in *Republic* 4. With Descartes the soul performs one function only. It is exclusively a "thinking thing," a mind, or a "consciousness"; and it is "one and single" or without parts. After Descartes it is hard to name a thinker of the first rank, of whatever metaphysical or antimetaphysical posture, who has sought to restore to the soul either this internal structure, or its original "organic" meaning as responsible for life and motion and "worldly" activity. In these decisive respects we are entitled to speak of the modern soul as having its own metaphysical neutrality. Beginning with Nietzsche's charge that "Descartes is superficial," the most passionate critics of "Cartesianism," in one or more of its forms, have tended to overlook their basic agreement with it.

A second reason for this neglect is the form in which Descartes was led or compelled to present his soul doctrine in the *Meditations*. In some complex manner the *Meditations* is both a medieval, Scholastic-Aristotelian writing, as well as the acknowledged founding writing of modern philosophy. It is

traditional as "first philosophy" (by its title) or speculative metaphysics of substance, and as Christian apologetics concerned with the salvation of the infidel. In accordance with both, the soul is a separate, immaterial substance with an immortal destiny unprejudiced by the fate of the body. On the other hand, the *Meditations* is novel or modern as quest for indubitable "foundations" of the edifice of the sciences (*Meditations* 1, beginning). The goal of the edifice of science is however stated only in the nonapologetic or more secular writings: the "mastery and ownership of nature," or "the enjoyment of the fruits of the earth in this life without pain," or such a wisdom as depends on knowing that "the mind depends acutely on the temperament, and the disposition of the organs of the body" (*Discours* 6, paragraph 2). It is tempting to distinguish two Cartesian soul doctrines, the separate and immortal soul of the apologetic *Meditations*, and a secular soul articulated mainly outside the *Meditations* and especially in the *Passions of the Soul*, where Descartes speaks "as a physicist," addresses "the whole nature of man" (*Passions*, Part 1, title), never mentions any doctrine of substance, and remains utterly unperplexed about the interaction of mind and body. While such a gross distinction proves to be not without a certain homely truth, it leads us away from the *Meditations*, the classic document of the discovery of the modern soul doctrine.

We take as our clue the concluding ten pages of the *Meditations*, which address the question, what is man ("my nature in particular")? Here Descartes omits all reference to substance, or the two-substance doctrine, and replaces the latter with the threefold distinction between consciousness, extended body, and the composite of mind and body. Consciousness is known as indubitable by "the light of nature" and extended body is the object of the science of nature: both are known "theoretically." But to the composite of mind and body is attributed a "teaching of nature" which one might even call "the natural attitude" because it is the taken-for-granted belief of prephilosophical experience. "The nature here described truly teaches me to flee from the things which cause the sensation of pain, and seek after the things which communicate to me the sentiment of pleasure" (AT 9:66; HR 1:193; CSM 2:57). This teaching is not merely an "attitude" of hedonist sort, but founded in what is naturally and normally beneficial or hurtful to the composite whole: the nature of the composite is teleological. According to the standpoint of the composite, to be sick is bad and a corruption of nature; according to the science of nature, a sick body and a healthy body both obey and obey perfectly the laws of nature. Descartes here opposes our ordinary human standpoint on what is good or bad to the "moral neutrality of science" in a manner paradigmatic for the modern period. He makes no attempt to sacrifice the teleology of the composite to the mechanism of the sciences: both sides of the antinomy

must somehow be preserved. The opposition of science and the natural experience of the composite cannot be stated in terms of the metaphysical dualism of mind and body, if only because the natural teaching is pretheoretical. "So basic is the real unity of the human composite that its meaning cannot be reconstructed from his separate metaphysical analyses of mind and body."[1] The teaching of nature here mentioned may be called the practical teaching of nature. It must be broadened to include a "theoretical" teaching of nature that has two chief theses, that our images attest the existence of bodies, and that bodies are similar to those images (*Meditations* 3). It is our intent to show that only from the confrontation between this complete prephilosophic natural teaching and Cartesian science does Descartes's soul doctrine emerge.

In Part (1) below, we contrast the apologetic and foundational statements of the *Meditations*' intention, in order to establish the pragmatic goal of Cartesian philosophy. In (2), this conception is traced to the account of the "natural attitude" of the prephilosophic soul in *Discourse* 1–2. In (3), Cartesian doubt in *Meditations* 1–2 is presented as the conflict of the natural attitude ("the teaching of nature") and scientific reason ("the light of nature"). In (4) the Cartesian soul is examined in its original formulation as metaphysically neutral (*Meditations* 2). In (5) the argument for the dualism of soul and body substances is considered (*Meditations* 6). In (6) we examine the replacement of substantial dualism by the threefold distinction (*Meditations* 6) mentioned above.

1

The varied treatment of the stated intentions of the *Meditations* distinguishes the contemporary Cartesian scholarship from the rationalist school of former times. Descartes states his intention as Christian apologetics in terms similar to those of Thomas in the *Summa contra gentiles*. The *Meditations* is an attempt to persuade "the infidel" by natural reason alone that God exists and the human soul does not perish with the body, for the sake of religion and moral virtue. On this ground Descartes asks "the protection" of the Sorbonne, as an "authority" second only to the Sacred Councils. To the rationalist school this apologetic claim is simulation. The young Gilson wrote that Descartes "was forced to obtain the approbation of the Sorbonne"; "it was necessary for him to take a solid position in his war against the Jesuits, and in these conditions, there is nothing astonishing in that he presented himself to his judges as the defender of the cause of God and religion."[2]

The rationalists did not attempt a textual proof of the simulated character of this apologetics; they believed the letter to the Sorbonne spoke for itself.

The apologetic claim requires the distinction between the infidel, to whom the *Meditations* is exclusively addressed, and the faithful, for whom the rational proofs of God and the immortal soul are said to be superfluous. The apologetic claim makes no mention of the necessity to persuade the infidel that there are truths that are inaccessible to natural reason; the apologetics of "the founder of modern rationalism" is different in kind from that of its medieval prototype. About the middle of the Sorbonne letter Descartes replaces the distinction infidel/faithful with the distinction between the few who philosophize and the many who arrogantly combat the truth: the apologetic claim is tacitly replaced. To protect him from the many, Descartes requires the Sorbonne, which has authority over the many; an authority indeed of such startling efficacy that it will "cause the atheists . . . to rid themselves of their spirit of contradiction." As regards the soul, the doctrine that it is an independent substance is a sufficient premise for denying that the soul perishes with the body, but not for asserting that the soul is immortal; yet this "suffices to establish religion."[3] Whereas the apologetics claims to adhere exclusively to natural reason, the doctrine of the soul as independent substance is not finally accessible to natural reason: each soul is a special creation (*Discours* 5, end). That doctrine is required for the sake of "the weak minds" who depart from "the strict path of virtue" if they believe that "after this life we have nothing to fear or to hope for, any more than the flies and the ants" (*Discours* 5, end). The *Meditations* will inevitably be read by weak minds who will believe and be consoled by the promise of immortality, but it is addressed to *les plus forts esprits* (4th *Replies*, to Arnauld).

The rationalist school believed that the apologetic claim conflicted with Descartes's second stated intention, to seek an indubitable foundation for the sciences (*Meditations* 1, beginning). They recognized a problem; contemporary Cartesian scholarship scarcely alludes to either statement of intention. The rationalists believed that the simulation of the apologetics was inseparable from a certain dissimulation of the foundational intention. Descartes indeed asked Mersenne not to tell people that "these six *Meditations* contain the whole foundation of my physics"; he hoped that his readers would recognize the truth of his principles "before perceiving that they destroy those of Aristotle."[4] The *Meditations* is governed by a grand rhetorical strategy: divide the compound "Scholasticism" in order to conquer: by his apologetic claim Descartes simulated an agreement with its biblical and ecclesiastical component, the better to dissimulate his opposition to its Aristotelian component. But what is the extent of the opposition to Aristotle? The rationalists assumed without adequate reflection that Descartes rejected the Aristotelian physics in toto but retained the Aristotelian concept of "first philosophy" as a speculative metaphysics of being or substance.

The *Meditations* is *Meditationes de Prima Philosophia*. "*Prima philosophia*—this is the *prote philosophia* of Aristotle, the question concerning the being of what is."[5] In accordance with this Aristotelian tradition, it is both general doctrine of substance as well as of the first Being, to which the argument ascends and from which it descends; and it is "speculative" in goal as distinct from "practical." It employs the terminology of substance, essence, formal reality, eminent reality, objective reality, modes. We must however agree with Gilson that "it is important to know whether the Scholastic and theological apparatus of which Cartesian thought makes use is an accidental and external veneer which in no way prejudices the profound sense of the work, or whether it really constitutes the very matter and substance of this philosophy."[6]

Descartes in the *Meditations* never asks or discusses the questions, what is being, or substance, or essence. Nothing approaching a definition is found of these terms. It is occasionally suggested that substance is that which is self-subsistent; this meaning is left in the darkest obscurity. A rock is said to be "a substance," in ambiguous agreement with the Aristotelian tradition (*Meditations* 3). On the other hand, body in general, the entirety of matter in the universe, "is one substance" (synopsis, AT 9:10; HR 1:141; CSM 2:10). Although Descartes advises the reader of *Principles* 1 that its metaphysics is best understood by studying first the *Meditations*, scholars often assume that the more technical metaphysical terminology of the *Principles* can be employed without question to interpret the *Meditations*. But the *Principles* possesses this alleged advantage in part at least because it was designed to supplant the Scholastic textbooks: Descartes made "use of a mode of writing more suited to the usage of the Schools" (to Father Dinet, AT 7:577; HR 2:357; CSM 2:389). In *Principles* 1.51, a substance is "a thing which exists in such a manner that it has need only of itself to exist." Although only God is a substance in the unqualified sense, and minds, and body in general, are substances dependent upon God, the implied equivocity is scarcely touched upon by Descartes, as Heidegger remarks. "He evades the question . . . this evasion is tantamount to his failing to discuss the meaning of being which the idea of substantiality embraces."[7] However, before we accept this as a "failure" it must be considered whether Descartes is not fully aware of such "evasions."

Does he utilize the metaphysical terminology of the tradition unaware of, or unconcerned with, the precision with which its issues and implications had been treated in the tradition? Or does he employ it as an ad hominem concession to the regnant Scholasticism of the day? In *Discourse* 1 (paragraph 2) he introduces the reader to his use of Scholastic language by employing the terms "forms or natures," "accidents," "individuals," and "species," italicized

in the French original, to prove the natural equality of reason in all men, which he frequently contradicts elsewhere without using that language. In *Discourse* 4 (paragraph 2), in the midst of the proof of the existence of God, and nowhere else in the work, he says "I shall use freely here, if you please, the words of the School," and employs traditional terms without explanation. We find that in the *Meditations* he uses little or no traditional terminology until in *Meditations* 3 he addresses himself to the first part of his apologetic intention, the proof that God exists. Abruptly a group of Scholastic terms is introduced, scarcely defined and devoid of supporting explanation—"objective reality," "formal or actual reality," "eminent reality." Even though the *Meditations* is addressed to the Sorbonne, whereas the *Discourse* is addressed to the men of "good sense" or "the public," he does not fail to use small indications of the borrowed character of his terminology. He prefaces his introduction of "objective reality" with a "so to speak" (*ut ita loquar*; in the French version, *pour ainsi parler*). He speaks of "that reality *that the philosophers call* actual or formal" and "the reality that *they name* objective" (AT 9:31–32; HR 1:162; CSM 2:28): the italicized words were added in the French version, possibly by Descartes and certainly with his approval. As acceptable to the regnant tradition, they do not require explanation; as [he employs them] for purposes acceptable to the tradition, he is relieved of the obligation to explain why such notions as "formal reality" or "degrees of reality" are employed by him only in metaphysical contexts, and indeed only in certain theological parts of his metaphysics, and never in his natural philosophy. As regards the soul, his procedure is to use the traditional language of substance, but to avoid those implications which raise difficulty for the apologetic goal it serves—as with the equivocity of substance, mentioned above. Thus after the proof of substantial dualism of mind and body is made in *Meditations* 6, he omits any attempt to establish the substantial unity of mind and body substances, or the possibility of interaction of substances. The most extreme metaphysical cleavage has been established without any attempt at a metaphysical bond in the *Meditations*; what is too glaring an omission to be regarded as an "oversight" is, to be sure, discussed in his replies to critics. He asserts that the relation of the mind and body substances is a substantial union (AT 7:585). "He is dressing up his thought in a scholastic language which was adapted to express a very different doctrine, namely the hylemorphic thesis taken from Aristotle."[8]

The *Meditations* could be at most a partial metaphysics of substance. The primary ontological thesis about the world or nature—that the essence of body is extension—is never argued in the work. Indeed any thematic discussion, and anything approximating a proof, of this celebrated thesis is lacking in the Cartesian publications, so far as I am aware. It certainly appears to the

reader that he will receive such a discussion by the title of *Meditations* 5, "Of the Essence of Material Things . . ."; he is disappointed. On the other hand, the thesis that body is primarily to be understood in terms of the concept of extension, which is prior to figure, motion, and so on, is asserted in *Meditations* 1, and one could even reasonably say that it is said or implied in each of the six *Meditations*. Should we regard the presence of the extension concept as equivalent to the ontological assertion about the essence of body? In that event the *Meditations* would be not only a partial but a posterior metaphysics as well: the presence of the extension concept throughout would require us to say that in some complex manner the entire work presupposes the ontology of body. "Essence" is never defined in any Cartesian publication: what meaning employed by what philosopher of the tradition should we fall back on? We are of course free to believe that the philosopher who proclaimed the "doubt of all opinions" was nonetheless the unwitting "child of his time." It seems more prudent however to conclude that extension is not a metaphysical but a methodological concept of the science of body; in this form it exercised a considerable influence on Cartesian theology.

Descartes cites Romans 1 as sanction for natural theology, in keeping with the tradition of Augustine and Thomas. He does not cite the statement from Romans 1:20 traditionally used: "The invisible things of Him from the creation of the world are clearly seen being understood by the things that are made." He cites instead the last phrase of Romans 1:20 and next the first clause of Romans 1:19, in order to offer sanction for proofs of God that derive "from the simple consideration of our minds." The question immediately arises whether Cartesian theology is natural theology or rational theology: does Descartes ever prove the existence of the perfect God from the entirety of nature? Or does the mechanism of Cartesian nature exclude such a proof? In the primary proofs of *Meditations* 3 and 5 the basis or the "effects" from which he rises to the perfect God is limited to a tiny scrap of the creation, an idea in the human mind. The so-called second proof of God in *Meditations* 3 argues, at least implicitly, that the whole of the creation requires God as its conserving agent from one instant to another; but it is not said that the agent must be a perfect being. Descartes claims (*Discours* 5, paragraph 2) to deduce "the laws of nature" from "the infinite perfections of God"; or at least the law of inertia from the "immutability of God" (*Le Monde* 7): he claims to "descend" from what is first in the order of being to the phenomena. The deduction is lacking, and the inertia of bodies scarcely testifies to the excellence of their maker. In sum, whenever Descartes argues to the existence of a perfect being he does not argue from the whole of nature; and when his argument is from or to the whole of nature it does not require as its first cause a being who is perfect. We can scarcely avoid the conclusion that the Cartesian physics de-

termines the character of Cartesian theology. For that physics is devoid of "final causes" or natural evidences of the purposes of the Creator.

The *Meditations*, as "first philosophy," is concerned with "speculative truths" and not with "matters pertaining to the faith or the conduct of life" (AT 9:11; HR 1:142; CSM 2:11). Its purely speculative character contradicts the apologetics whose concern with persuasion to religion and moral virtue is eminently practical in goal. As speculative, the *Meditations* does not treat of "sin, that is, the error which is committed in the pursuit of good and evil." As Gilson observed, the treatment of the origin of error in *Meditations* 4 twice extends the range of error to "error and sin." But these are minor difficulties in preserving the view that Descartes intends the *Meditations* as a purely "speculative" inquiry. We should expect that as speculative metaphysics or first philosophy its goal would be "wisdom"; of the four Cartesian publications, the *Meditations* is the only one that never mentions "wisdom" or "wise." The problematic character of the speculative claim appears when we consider the intention of the *Meditations* as quest for indubitable "foundations" of the edifice of the sciences. The structure of the sciences is identical with philosophy as a whole; the distinction of "philosophy" and "science" is posterior to Descartes. The end sought by the edifice of science, or philosophy, is not mentioned in the *Meditations*; in place of the missing *telos* we find only the apologetic goal, that is, the tactics of prudence. The goal of philosophy, which the quest for foundations subserves, must then be sought in the *Principles* and the *Discourse*. Philosophy as a whole is like a tree, whose roots are metaphysics, whose trunk is physics, and whose branches are medicine, mechanics, and morals (preface to *Principles*, AT 9:14–15; HR 1:211; CSM 1:186). By "morals" is meant "the most perfect moral science which, presupposing a complete knowledge of the other sciences, is the last degree of wisdom." But even this practical moral knowledge is not the *telos* of philosophy, because one cultivates the tree not for the sake of the roots, the trunk, or the branches, but only for "the fruits": not practical wisdom but practice itself is the end. More emphatic is the replacement in *Discourse* 6 (paragraph 2) of "that speculative philosophy taught in the Schools" by a "practical" one by which we can render ourselves "like masters and owners of nature" and "enjoy without any pain the fruits of the earth." The *telos* of philosophy as moral knowledge or practice had to be excluded from the *Meditations* because it conflicts with both its claims—to be Christian apologetics and Aristotelian speculative philosophy. The tradition with which Descartes broke claimed that the sign of the purely theoretical character of the quest for wisdom was its origin in wonder. It cannot originate in wonder if men's souls are essentially concerned with practical life, or unless men "by na-

ture desire to be in a state of knowing." The possibility of Cartesian philosophy must be explained by an account of the soul that includes prephilosophic natural reason and its purposes.

2

Descartes's concern with "good sense" in *Discourse* 1 is often recognized as a consideration of prephilosophic or natural reason. *Discourse* 2 is a summary, somewhat modified, of the doctrine of method and pure intellection in the earlier fragment, *Rules for the Direction of the Mind*. In the *Rules* we find almost no reflection on prephilosophic reason. What problems led Descartes to place the summary of the *Rules*, with its historically earlier and more theoretical account of intellect, in *Discourse* 2, and to preface it with some account of prephilosophic reason in the first part of his first publication?

In *Rules* 1 the theme, *humana sapientia*, is identified with "the sciences taken all together." Human wisdom is likened to the sun which is not itself differentiated by that which it illuminates. The sun is the image of wisdom in the young, the "tree" in the mature Descartes. The sun image anticipates the pure intellection of the *Rules*, whose purity and autonomy are assured to it by its "innate ideas" or self-imposed rules, or both. These elements will be preserved in the consciousness theory of the *Meditations*. Of later import also is the denial that soul is a cause of motion; the place of soul, absent as either *anima* or *animus*, is occupied by the *ingenium* which is equated with *mens* or mind. In *Rules* 1 Descartes asks what is the end, purpose, or good sought by human wisdom? He acknowledges that wisdom or intellection is not its own end; the end sought by wisdom is external to wisdom; in *Rules* 1 Descartes rejects the speculative character of wisdom in Aristotle (*Metaphysics* A.1–2). He concludes that the end of wisdom is practical—"to light the will to its proper choice in all the contingencies of life." But the activity of pure intellection remains without any intrinsic link to its practical end. The image appears to imply that just as the sun is not incited to shine by what it illuminates, so the pure intellect is not aroused to pure intellection by the contingencies of life. If the intellect has no inherent "desire to know" (to which no allusion is made), if its activity does require a purpose, then a new account must be given of the genesis of intellection. The insights furnished by the mathematical sciences furnish no guide to the *telos* of human wisdom. Intellection must be human intellection, not sunlike or godlike indifference to the illuminated. The account of intellection must begin with human reason, or with the natural sources of reason in man as man. Human wisdom does not "always remain one and the same" like some sun motionless at the center. Beginning with

Discourse 1, wisdom begins to be like the tree that grows naturally to perfection if aided by art or method.

"Good sense is the best distributed thing in the world." The first sentence of the *Discourse* is based on Descartes's observation of the way men use their "good sense or reason." "For each thinks he is so well provided with it that even those most difficult to satisfy in all other things, do not usually desire more than they have of it." Equality of satisfaction does not imply equality of that good sense or reason with which each is satisfied. The equality of satisfaction with one's reason must be traced to errors in the use of reason, which have their cause in the naive or natural egoism of men. "I know how much we are subject to deception in whatever touches ourselves." Hence natural egoism is the best distributed thing in the world. The natural egoism manifest in the good sense of "each" is sounder than, or lacks the "extremism" of, the great-souled man. "The greatest souls are capable of the greatest virtues as well as of the greatest vices." Both are distinguished from a third case: those who follow "the straight path," or possess the methodical reason of Cartesian philosophy. This triad of human types presented in *Discourse* 1, paragraph 1, and often repeated elsewhere, is the basis for the discussion of the prephilosophic soul.

"The simple reasonings that a man of good sense can make naturally" about the immediate, or close at hand, approach "the truth" more closely than those of "the sciences of books." This soundness of natural reason concerns "the reasonings that each makes touching the matters that concern him, and of which the result will punish him immediately afterwards," if he has judged badly. The natural attitude of natural reason is to be concerned with the good of one's own. Its undeniable purposiveness is directed naturally by the aversion to pain, even more than by attraction to the pleasant. Its naive egoism is identical with the native hedonism which is called "the teaching of nature" in *Meditations* 6. Good sense while egoistic is modest in its self-esteem. It must be contrasted with the second human type, whose excessive self-esteem, or vanity, or greatness of soul, blinds them to their own good. In this group are the "men of letters" whose "speculations" are the more ground for vanity the more removed they are from "common sense," that is, "good sense." While this passage is directed immediately against the speculative philosophy of the Scholastics, the charge of vanity is directed against Plato and Aristotle as well (*Rules* 3). The attempt to transcend the concern of the natural attitude with one's own good, and thereby to attain a specious superiority to "the many," is the basic error of the long tradition of speculative philosophy. Descartes pursues the truth "in order to see clearly in my actions, and to walk with assurance in this life." He rejects what "the ancient pagans" call by "so beautiful a name," or "virtue," as an impossible attempt to transcend the natural concern

with one's own by pursuing the good for its own sake. This self-deluded transcendence is "insensibility, or pride, or despair, or parricide" (*Discours* 1, paragraphs 10 and 14). The "foundations" for virtue which ancient virtue lacks must be sought in the solid selfishness of natural man. This entire argument in *Discourse* 1 participates in the new moral "realism" of Machiavelli, Bacon, and Hobbes.[9]

Philosophy is distinguished from both human types not by an impossible attempt to transcend the natural end as one's own good, but by the methodical or scientific means to that end. Descartes's reflection on method (*Discours* 2, beginning) takes its bearings, not from mathematics as in the *Rules*, but from the principle that works accomplished by one master usually have more "perfection" than those composed by many. The good sought is the perfection of mastery, and the deserved self-esteem derived therefrom—which Descartes calls *générosité* in the *Passions*. It is called *générosité* because it is ingenerate, or congenital—the natural strength of the *ingenium* in the "strong mind." This distinguishes it from the Aristotelian "greatness of soul," which as a moral virtue is the product not only of nature but of habituation as well. In the passion of *générosité* Descartes believed he found the basis by which philosophy could be both immanent and transcendent as regards nature. *Générosité* is concerned naturally with one's own, but that with which it is naturally concerned, and the natural force with which it is so concerned, compel it to emancipate itself from what "nature teaches" as regards the means to that natural end.

In *Discourse* 1–2, Descartes has already made the distinctions of the *Meditations* in his prephilosophic "teaching of nature" between what we have called the "practical teaching" and the "theoretical teaching" of the natural attitude. On this distinction depends the possibility of philosophy. The immanent, natural, purposive directedness to one's own good—the practical teaching—is preserved: it is the seed or source of the tree of philosophy which culminates in practical wisdom. What must be doubted and transcended is the theoretical teaching of the natural attitude, or that truth about the world which begins with the natural deliverances of the senses. This theoretical natural teaching is reduced in *Meditations* 3 to two theses of apparently equal erroneousness: (1) that bodies exist and (2) are similar to those images of them that are derived from the senses. They are replaced by the methodical or mathematical science of nature, the work of the pure intellect articulated essentially in the *Rules*. Thus the two contradictory metaphors of mature Cartesian philosophy are reconciled: the natural metaphor of the tree of philosophy which expresses our immanent directedness to our own good; and philosophy as architecture, or edifice of science, the human construction of the nonnatural means to the natural end. It

is only as a means that philosophy is "mastery of nature." As Bacon had seen, the methodical construction of the means to establish "the power of the human race over the universe" must remain within the domain of "final causes" or natural purposiveness, as regards its end.

The natural attitude of the prephilosophic soul is traced to the infant soul, and to the peculiarities of human growth. Reason's perfect mastery requires that it overcome a fact of human nature: that we do not have "the complete use of our reason from the point of our birth" (*Discours* 2, paragraph 1). For "the first and principal cause of our errors is the prejudices of our childhood," as is explained in *Principles* 1.71. The child originally does not refer his sensations to "anything existing outside himself": he does not hold the "existence thesis" of the natural teaching. The child is an unreflective hedonist who "feels pain when the body is hurt and pleasure when it receives some good." The child also experiences the weaker sensibles of the five senses "which in truth represent nothing existing outside the mind." The infant does not distinguish the status of these "mental" properties from "magnitude, figures, movements, and so on." These latter classes anticipate what Locke was to call "secondary" and "primary" qualities.

When the child acquires the voluntary motor capacities of his body, he refers his perceptions to things outside himself: he adopts the "existence thesis." This thesis, obviously required for survival, although never indubitable, is less grievous than the simultaneous adoption of the "similarity" thesis. The child refers all his sensations to things that they "resemble" without distinguishing between the "primary" or scientific properties and the "secondary" or "mental" properties. Not only is his reason too immature to distinguish them, but, guided by pain and pleasure, he judges that "there is more or less reality in each body, according as the impressions made on body were more or less strong." From this source arise "a thousand" errors about the natural world, the truth of which lies in "magnitude, figures," and—by implication—extension. Human nature, or the human body, is the cave that naturally induces us to perceive the world as composed of "the things with their properties," in "Aristotelian" fashion. The naturally perceived objects are in fact only *pragmata*: the distortion of the natural things by the "similarity thesis" must be traced to the pragmatic egoism of natural man—to the practical "teaching of nature." It will be the function of Cartesian doubt to suspend the "similarity" and "existence" theses so that natural reason can attain the standpoint of scientific intellect, or the separation of mind or "consciousness" from the world. This separation must be made in a manner that does not fracture the unity of the composite of mind and body, in which resides the practical teaching of nature, and upon which the Cartesian philosophy is based.

3

Cartesian doubt is a means to indubitable foundations of the edifice of science, and not to a theoretical metaphysics of substance, as said above. Doubt is therefore a means to the ultimate science of "the tree of philosophy," "the perfect moral science," or the "fruits" thereof, practice itself. Doubt partakes of the practical character of natural reason; "reason is a universal instrument" (*Discours* 5, paragraph 10). It is "prudent," says Descartes, "not to trust entirely to anything by which we have once been deceived," and the senses deceive. Prudence, or practical judgment, governs, because the truth or falsity of sensation is determined for the sake of the practical end. On this premise, a well-known objection can be removed. Cartesian doubt has been charged with "mathematicism," or the illicit identification of knowledge with certainty, or indubitability. Descartes replies that his philosophic goal is practical, and that certain or indubitable knowledge is the most practical. Cartesian doubt demands that if there is some one reason for doubting a thing, it must be totally rejected. Its rationality is the requirement that a *ratio dubitandi* be present. The inference from the *ratio dubitandi* to the total rejection is hyperbolic and arbitrary, until the underlying practical intention is recognized. Ultimately, all things will be doubted that can be denied without contradiction. All the sensible or factual will be doubted for, as with Hume, "the contrary of every matter of fact is still possible . . . it can never imply a contradiction." For Descartes one existent will resist this test of logical possibility.

Cartesian doubt is directed upon the "principles" on which knowledge is based. Sensation is the first of the principles that supply its threefold structure. Sensation is not rejected because it sometimes deceives but because the truth of sensation presupposes the truth that we are awake, of which no demonstration is available. The step to the dreaming *aporia* is prepared by Descartes's extravagant supposition that perhaps all his sensations are distorted by his bodily state, as with certain melancholic madmen whose perceptions are crazed by black bile in the brain. Descartes here is not pointing to the traditional reflection that all trust in sensation presupposes the normal, healthy state of the organism. He is saying the contrary: even or especially the normal and natural human organism distorts our perception of the sensible. His suppositions here are the same seen above in the description of the infant soul. He is not concerned with literal dreaming as an *aporia*, but with "imagination" or the status of "all these images of things which dwell in our thoughts" and especially with the dependence of trust in images on "the teaching of nature" in its practical part; for this dependence of image on the natural organism, the state of dreaming, in which images are dependent on the body and only secondarily on the external senses, is a metaphor. If Descartes

were concerned with whether he is literally dreaming or not, he would not discuss in the context the creative limits of the imagination of the painter—who is obviously not asleep. If dreaming were a genuine *aporia*, he would not postpone the resolution of the difficulty until the last page of the *Meditations*, and thereby imply that all the demonstrations of the book, including those of the *cogito* and God, could be performed while asleep. This Homeric jest is sometimes missed. Imagination is the second of the three principles of knowledge addressed in Cartesian doubt, preceded by sensation, and followed by intellect or understanding (cf. *Rules* 8). Dreaming, in which we take images for things, is a metaphor for our trust in the images that derive from sensation, as presenting the truth of the things sensed. The original suggestion that trust in the natural deliverances of the senses is madness, has been replaced by a new version of an old philosophic thesis, that in our ordinary waking experience "life is a dream." "It may be that all these images and, speaking generally, all things that relate to the nature of body, are nothing but dreams" (AT 9:22; HR 1:152; CSM 2:19). True awakeness is scientific knowing alone. More precisely, it is doubt of the "existence" and "similarity" theses, which are rooted in our pragmatic nature. At the end of the stage of "dreaming," that is, imaging, the true *ratio dubitandi* for the imageable and sensible is "the simpler and more universal things" of Cartesian science which are "real and true": extension, figure, quantity or magnitude, number, place, time, and so on. From these universal things "all these images of things are formed" (for images of color formed of extension and figure, see diagram, *Rules* 12).

This confrontation of the natural teaching with Cartesian science must be clarified in the third stage of doubt. Extension, figure, and so on, are all mathematicals but mathematical sciences are of two kinds. Physics (together with astronomy and medicine which it includes) is necessarily concerned with things that exist *in rerum natura,* but arithmetic and geometry (to which algebra should be added) are not. Accordingly, physics remains dependent on the image to attest the existence of its corporeal objects, but arithmetic and geometry do not; the latter remain true "even though we are dreaming." This holds even though physics is part of geometry (*Principles* 2.64); it is not simply so. Thus both physics and pure mathematics are independent of the "similarity thesis" of the natural attitude, but only pure mathematics is independent of the natural "existence thesis." In the sequence of Cartesian doubt, the similarity thesis is first doubted, on the *ratio dubitandi* supplied by the scientific universals; after which the existence thesis is suspended, on the fictive *ratio dubitandi* of the Evil Genius. Their respective dubitability is quite different. Ultimately the existence thesis, or "the great inclination to believe" that bodies exist (AT 9:63; HR 1:191; CSM 2:55), will require the goodness of God as a guarantee of its acceptability. Only on this theological premise is

the existence of the world restored. But if the divine guarantee can be invoked to salvage the existence thesis from its dubitability, we inevitably wonder why it could not be invoked to save the similarity thesis as well. The answer would seem to be that Cartesian science requires the existence thesis to be a science of the world (or to avoid "idealism"), but is in irrevocable conflict with the similarity thesis. As is peculiarly evident in *Meditations* 3 (AT 9:30; HR 1:160; CSM 2:26), to doubt the similarity of images to bodies presupposes the truth of the existence thesis; the converse does not hold. Nevertheless by maintaining through most of the *Meditations*, that the existence of bodies is just as dubitable as their similarity to our images, Descartes makes it inevitable that only by God's help can the existence of the world be restored.

God, "who can do everything" and may possibly be evil, is introduced in *Meditations* 1 as a *ratio dubitandi* for the pure mathematicals, and for the principle of contradiction. Such a God could make it true that "I am deceived every time that I add two and three." Since Descartes presumably would sometimes conclude that their sum is five, it cannot here be a case of God causing human errors in arithmetic, as is sometimes said. The sum of two and three could be made by God to be any amount whatever; such a God is not bound by the law of contradiction, as is explained in the 6th *Replies*. On such a *ratio dubitandi* all human reasoning must cease; small wonder that Descartes abruptly announces that God is good and withdraws him from pre-*cogito* doubt. We cannot here investigate whether the *aporia* created by the "old opinion," that there is an omnipotent God, is overcome when it is reintroduced in *Meditations* 3. Before God is explicitly withdrawn in *Meditations* 1, the "atheist" supposition is introduced, that the author of man's being is "fate or chance, or a continuous series of things." It is sometimes said that this is still a more grievous *ratio dubitandi* than the previous theistic one. For Descartes argues that the less powerful his author the greater the likelihood of deception. But this concerns degree of power alone; the atheist assumption is not being compared with the God who may be evil.

Descartes's point is traditional: man is more likely to be imperfect and err if his originating cause is "fate" or blind nature than if nature is ruled by intelligence. According to the chief premodern traditions, there is a trustworthy harmony, imperfect yet corrigible by reason, between the image and what it conveys of the existence and nature of things. If nature is ruled by intelligence, this harmony, beneficent to the possibility of knowledge, is credible; but if by fate or chance it is dubitable: nature may be maleficent. The success of the Cartesian physics, which does not trust the sensible, strengthens this possibility. The personification of such a nature is the Evil Genius. As the Evil Genius is never said to be omnipotent, but only very powerful, or not less

powerful than deceitful, he is not an epistemological equivalent or *persona* of the biblical God. As we have argued elsewhere,[10] if the omnipotent God is presented as a *ratio dubitandi* in the Cartesian writings, mathematics is dubitable, and if mathematics is dubitable, the Evil Genius is not the *ratio dubitandi*. The Evil Genius renders dubious "all external things" or what is conveyed by the image, that is, all the bodily, including the body of the Cartesian doubter. It does not render dubious that which is independent of trust in the image, or pure mathematics, "eternal truths," "common notions," and the principle of contradiction. The *cogito* will prove immune to the Evil Genius, but the threat of the Evil Genius is not abolished by the *cogito*: he will reappear immediately thereafter to personify the similarity thesis (AT 9:21; HR 1:151; CSM 2:18). Whereas the similarity thesis had been doubted on the *ratio dubitandi* of the scientific universals, no new *ratio dubitandi* is introduced by the metaphoric Evil Genius for the existence thesis; but it can be denied without self-contradiction. The Evil Genius personifies both the similarity and existence theses of "the teaching of nature": they include everything that is doubted within pre-*cogito* doubt. Descartes's claim to "doubt all things" has a somewhat rhetorical character: Leibniz remarks that perhaps Descartes sought "to stimulate the sluggish reader through novelty."[11]

4

Descartes affirms "that this proposition, I am, I exist, is necessarily true each time that I pronounce it or that I conceive it in my mind." This assertion bears its correct meaning only in conjunction with the preceding doubt. The "I" which had initially resolved to doubt is identical with the man Descartes, formerly too young but now of sufficient maturity to seek "foundations." He asserts that even though he doubts that images, and ultimately the senses, supply knowledge of the nature and existence of bodies—the nonmetaphorical meaning of the Evil Genius's deception—this doubt is not only compatible with but also requires the truth of the assertion "I am." The doubt that bodies exist extends to the existence of the body of the doubter; the doubt that he exists cannot extend successfully to the existence of the doubter insofar as he is a doubter; and doubting is a form or instance of thinking. Hence, even though the body of the doubter may not exist, it is necessarily true that the doubter exists as a thing that thinks, a *res cogitans*. To be sure, more than one question arises: for example, does "necessarily exist" apply to an intuition or immediate awareness that the act of thought must be an act of a being who exists? So understood, there are notable precedents in Aristotle and Thomas, as Beck has observed.[12] Does the necessity pertain to the act of doubting, or to

the utterance or thought "I am," or to some relation between them? As Descartes was well aware, the critic who rejects the *cogito* after reflection thereupon must show that it is possible to do so without presupposing his own existence. For Descartes the heart of the *cogito* is that the doubt that he is a body, or that there is a world, or the doubt of all that nature has taught him through the senses, is logically consistent with the truth of the assertion, "I am a thinking thing." As regards *Meditations* 2 we may agree with Heidegger that "[Descartes] investigates the '*cogitare*' of the '*ego*', at least within certain limits . . . he leaves the '*sum*' completely undiscussed."[13] More precisely, in *Meditations* 2 he investigates the *cogitare* but never the *ego* and avoids any metaphysical determinations as regards "substance." While this may be regarded as a neglect of "the question of being," or at least of being as substance, for Descartes the question is whether such neglect favors or prejudices the sought-for foundations of the sciences.

It must be further explained why knowledge of "thinking" does not depend on knowledge of existing bodies. This priority or independence is in the *ordo cognoscendi*. It does not exclude the possible dependence of the existence or being of thinking on the existence or being of bodies. It does not concern the *ordo essendi*; it is "epistemological." Initially it appears impossible to establish the independence of knowledge of thinking from knowledge of bodies. For "to think" includes among its senses "to imagine and to feel," and "to imagine is nothing else than to contemplate the figure or image of a corporeal thing." But a distinction may be drawn, by the help of doubt, between different senses of imagining and feeling. It is not inconsistent to assert that one is imagining or feeling even though it is doubted that bodies exist. The "appearances" imagined or felt may be "false"; "still it is quite certain that it seems to me that I see light, that I hear noise, and that I feel heat." What belongs to "thought" including imagining and feeling or sensation has been bounded off "epistemologically," as a region whose certainty does not presuppose knowledge of bodies. Admittedly, Descartes does not succeed in defining thought, of which he gives only a series of examples, and shifts from active to passive senses, and adopts the passive sense when he comes closer to the term "consciousness" in later writings. "The term *thought* comprehends all that which is in us in such a way that we are immediately conscious of it" (2nd *Replies*, AT 9:124; HR 2:52; CSM 2:113). His claim is to establish that the operations of thinking objects, whether universal and conceptual, or particular and imaged, can be known independently of knowledge of bodies, as is required by the scientific activity of intellect, or understanding, introduced explicitly only in *Meditations* 6. Beginning with the natural attitude, Cartesian doubt is meant to exhibit a non-self-contradictory procedure by which one can attain the standpoint of the intellect as one single agency that senses,

remembers, imagines, conceives, and understands. The method of doubt has bounded off by the criterion of certitude the "sphere of consciousness" which for Descartes is the single place where universal and particular, concept and image can be present to the single agency, intellect or understanding (*Rules* 12, AT 10:415–16; HR 1:39; CSM 1:42 with *Meditations* 6, paragraph 3). The indubitable presence to mind of these heterogeneous contents, which is established on the basis of the doubt of natural experience, is often taken for granted after Descartes by philosophers who apply to those contents such generic terms as "ideas" or "perceptions," and even call this starting point—"experience."

A second requirement of Cartesian science has also been secured in *Meditations* 2. Access to the phenomena of mind independently of knowledge of body has a corollary, less visible, of the independence of the knowledge of body from the phenomena of mind. Certain access has been gained to thinking without any implication that that which thinks is a principle or cause of the life or motion of bodies. For the "I think" is indubitable, although it is dubitable that bodies exist, and if that which thinks were in its traditional sense a "soul" (*anima*) that is the cause of the motions of bodies, then the latter must exist. Accordingly, that which thinks is called in *Meditations* 2 by a proliferation of terms from which the traditional *anima* is absent: "mens, sive animus, sive intellectus, sive ratio." In *Meditations* 2 we witness the death of the two-thousand-year tradition of the soul as the single principle of both life and motion as well as awareness, discernment, and thinking, and hence of the being and activity of men. It is not Descartes's argument in *Meditations* 1–2 that compels him to deny to the soul the responsibility for motion. As we see from Hobbes and others, that denial is required by the new mathematical sciences of motion whose integrity is vitiated by the presence of souls as principles of "self-motion." The peculiar feat of *Meditations* 1–2 is to gain indubitable access to the soul as exclusively a mind independently of responsibility for motion, and thus to avoid all jeopardy to the integrity of the object of physics. Thus doubt in *Meditations* 1–2 performs a kind of miracle: without any presuppositions from the science of body, an indubitable account of soul as mind is established which is precisely that required by the science of body. This miracle loses some of its efficacy once we reflect that Descartes, thanks to the method of doubt, did not begin with the experience of living, thinking, and acting wholes, and that both he and his modern posterity have met with acute difficulty in reconstituting wholes from "mind" and "body." Admittedly some abstraction has been made above from that respect in which Descartes does grant to the soul a responsibility for certain motions of a nonorganic kind—the freedom of the will. His acceptance of the traditional concept of the human freedom of will is based on inward experience and not on any assertion

that it meets the Cartesian demand for "clarity and distinctness." "For we would do wrong to doubt that which we perceive inwardly, and which we know by experience to be in us." It would be wrong to doubt this inward experience because it cannot be reconciled with the omnipotence of God, or "because we do not comprehend another thing that we know to be incomprehensible of its nature" (*Principles* 1.41).

The demands of science as regards (1) the intellect and (2) the object of physics have been met in *Meditations* 2 but apparently at the expense of any possible explanation of man as a composite whole. We have seen that in *Meditations* 6 the composite whole of mind and body will be the locus of "the teaching of nature" that establishes those primitive meanings of "good" and "bad" which Descartes never subjects to doubt. But the demands of science appear to require that intellect, mind, or consciousness be separate in some sense from body. It is of importance therefore to recognize that mind is separated or distinguished in *Meditations* 2 only "methodologically" or as a sphere whose certainty does not presuppose any knowledge of body, and in no sense "metaphysically." "Substance" does not occur in *Meditations* 2, nor is there any implication that "the thinking thing" can subsist independently, as the later implied meaning of substance requires. As said above, the fact that knowledge of thinking is independent of knowledge of body does not imply that the existence or being of the thinking thing is independent of the existence or being of body. The *res cogitans* is thus far an achievement solely in the *ordo cognoscendi*; no inference has been made about the *ordo essendi*. But Descartes draws a further conclusion. Precisely because the *res cogitans* is indeterminate in the *ordo essendi*, the *res cogitans* could be corporeal or incorporeal. "Perhaps these very things that I am supposing to be nothing, since they are unknown to me, are really no different from what I know as myself. I do not know" (AT 9:21; HR 1:152; CSM 2:18). What is here "supposed as nothing" is that which is doubted, the imageable, or bodily, including the body of the "I," the doubter himself. Since the *res cogitans* could be corporeal or incorporeal, it is metaphysically neutral as regards mode of being, or substantiality. This status, reiterated in *Meditations* 4, remains constant until the middle of *Meditations* 6. We suggest that this original metaphysical neutrality of the consciousness doctrine is a main cause of its acceptability to modern thinkers of all metaphysical and antimetaphysical persuasions. Perhaps no one appreciated this metaphysical neutrality more clearly than Locke and his "empiricist" followers. "Self is that conscious thinking thing—whatever substance made up of (whether spiritual or material, simple or compounded it matters not)" (*Essay* 2.27.17).

"The self" or "the I" are not terms employed by Descartes. It is true that "precisely speaking," or insofar as indubitable knowledge is available in

Meditations 2, the "I" is a *res cogitans* which is identified as a "mens, sive animus, sive intellectus, sive ratio." But nothing requires that the limits of "precise speaking," that is, of knowledge, are identical with the limits of being. The fact that Descartes knows only that he is a *res cogitans* does not imply that he is only a *res cogitans*. The *res cogitans* could also be a *res ambulans,* and so on. While the *ego* of Descartes is thus far known only as *cogitans*, it is entirely open for it to become further determined as composite of mind and body, as occurs in *Meditations* 6. The demands of the natural teaching of the composite about good and bad are not jeopardized.

5

Descartes states the argument for dualism of substances in one half-page paragraph at about the middle of *Meditations* 6. Nevertheless scholarship has experienced acute difficulty in establishing what that argument is, even with the aid of other passages. We shall quote the paragraph step by step, in its entirety.

> And firstly, because I know that all the things that I conceive clearly and distinctly can be produced by God such as I conceive them, it suffices that I can conceive clearly and distinctly a thing without another, in order to be certain that the one is distinct or different from the other, because they can be established separately, at least by the omnipotence of God.

It is not sufficient that two things be conceived clearly and distinctly for them to exist separately: a power is required to establish their existence as separate. The omnipotent God could do so; no evidence is given that he of necessity establishes the separate existence of what is conceived clearly and distinctly. The inference from knowledge to being, from the *ordo cognoscendi* to the *ordo essendi*, would be possible if it could be known clearly and distinctly that the agency of God must perform the separation in question. Since Descartes proceeds next to abandon the agency of God, we must conclude that the knowledge of his necessary agency is not available.

> And it does not signify by what power this separation is made, in order to oblige one to judge them different.

The power required need not be the omnipotence of God; the power in question could presumably be less than omnipotent and other than God. Nevertheless, the requirement remains in force that some power establish the separateness of existence of that which is conceived clearly and distinctly. But

what (or who) that other power might be, and why it must produce the separate existence in question, is in no manner even suggested by Descartes. In the remaining nontheological half of the argument, no attempt is made by Descartes to overcome the difficulties that he has himself raised, explicitly and implicitly, against it.

The paragraph continues:

> And consequently just because I know with certainty that I exist, and that meanwhile I do not remark that any other thing necessarily belongs to my nature, or to my essence, except that I am a thing that thinks, I very rightly conclude that my essence consists in this alone, that I am a thing that thinks, *or a substance of which the whole essence or nature is only to think*. (Words italicized were added in the French version.)

Nowhere previously in the *Meditations*, as critics have observed, has Descartes even asserted the essence premise here introduced so abruptly ("meanwhile I do not remark . . . except that I am a thing that thinks"). Effort has been made to derive this "nature or essence" premise from *Meditations* 2. "Essence" does not occur in *Meditations* 2; like "substance" and other traditional terms it is never defined in the *Meditations*; it is not defined in the *Principles* or in the 2nd *Replies*. Unperplexed by such difficulties, some make recourse to an assertion of the 4th *Replies*: "nothing without which a thing can still exist is comprised in its essence" (AT 9:171; HR 2:97; CSM 2:18). From this it does not follow that the essence of a thing comprises all that is required for the existence of a thing. Even if it did follow, we must observe that the assertions of *Meditations* 2 do not concern "my nature" (which we may take as equivalent to "my essence"), as is required by *Meditations* 6, but pertain rather to "the nature of the human mind" (*Meditations* 2, title). To be sure Descartes does say in *Meditations* 2 that "thought . . . alone cannot be separated from me" (AT 9:21; HR 1:151; CSM 2:155). So far as he then knows, or "precisely speaking," thinking is the only attribute that cannot be separated from him; as seen above, he explicitly denies that corporeality can be excluded from the attributes that belong to him. The step taken from what has been claimed as proved in *Meditations* 2, to the essence premise employed in *Meditations* 6, is identical with what Descartes identifies for us as a fallacious inference in the preface to the reader.

> It does not follow from the fact that the human mind, making reflection on itself, does not know itself to be other than a thing that thinks, that its *essence* or nature is only its thinking—in such a way that this word *only* excludes all other things that one could also say belong to the soul. (AT 7:7–8; HR 1:137; CSM 2:7; italicized words italicized in the Latin original)

What we may call "the *only* fallacy" infers from "knows only" to "is only," from the *ordo cognoscendi* to the *ordo essendi*.

The argument of *Meditations* 6 concludes:

> And although perhaps (or rather certainly as I shall say in a moment) I possess a body to which I am very strictly conjoined, nevertheless because, on the one side, I have a clear and distinct idea of myself insofar as I am only a thing which thinks and not extended, and as, on the other, I have a distinct idea of body, insofar as it is only an extended thing and does not think, it is certain that this me, that is to say my soul by which I am what I am, is entirely and truly distinct from my body, and can be, or exist, without it.

Here independent existence of the soul is first asserted. The independence assertion follows from the combination of (a) the distinct idea of body as extended and nonthinking, which has hitherto not been explicitly argued; and (b) the clear and distinct idea of myself as thinking and nonextended, for which the same is true, as seen above. We must also note in passing that the idea of body is "distinct" but the idea of soul is "clear and distinct." Even if the clarity and distinctness of the ideas of mind and body had both been established, we should still have the difficulty that things that are conceived separately can be made to exist in separation only by the agency of some productive power, God or other. Thus, even if the question could be resolved whether or not the *Meditations* contains an argument, valid or invalid, to show that the *res cogitans* is nonextended—a matter still disputed in the literature[14]—we should only be at the threshold of the further question, whether the *res cogitans* be an independent substance.

It is hard to avoid the conclusion that Descartes's arguments are afflicted with easily avoidable difficulties when he is supporting his claim for the protection of the Sorbonne, by establishing the immortality of the soul, or at least the existence of the soul as a separately existing substance. He employs the traditional Scholastic terminology for this traditional apologetic purpose in the most arbitrary and negligent manner, and supports this prudential object with arguments and assertions of lamentable fragility. However it has never proved possible for more than a few readers to dismiss as prudential the separate substance doctrine, because it appears to be necessary to Descartes's philosophic intentions. This necessity amounts to the assertion that a speculative metaphysics of substance is a requirement for the foundations of philosophy. Yet the speculative character of that metaphysics is in strict contradiction to the goal of Cartesian philosophy as practical wisdom, or practice itself. It remains now to be shown that the substance doctrine, so casually utilized in the *Meditations*, even jeopardizes the goal of philosophy. Accordingly it will be replaced in *Meditations* 6 with premises that for the most part

revert to the consciousness doctrine in the metaphysically neutral status of *Meditations* 2.

6

The final half of *Meditations* 6 is addressed to the question, what is the nature of man? "Nature, considered in general," is either God, or "the order and disposition that God has established in created things." By "my nature in particular" is meant the aggregate of "all that God has given me." That the nature of man is the ultimate theme of Descartes is evident from the surface characteristics of his writings. The *Discourse* in its final part culminates in the hope or plan for "a practical philosophy" that will make men "wiser and more skilful [*plus habile*]" (6, paragraph 2). The *Principles*, the most systematic writing, was originally designed to conclude with a sixth part treating of man (4.188). The *Passions*, the final publication, is only about man, and offers the only extended Cartesian treatment of "the whole nature of man" (*Passions*, Part 1, title). It is probable that a chief reason why the *Rules* remained a fragment is that the sunlike or godlike status of the pure intellect lacked coherent relation to the whole nature of man. After Descartes establishes the *cogito*, "the first principle of my philosophy," he turns to consider what his former opinions were of the nature of man—he mentions "rational animal." From the outset he means to replace the traditional account of man. There is an undeniable tension between the status of man as the highest theme of philosophy, and the status of God as the highest being.

Within "my nature in particular" a threefold distinction is made. What pertains "only to mind" and what pertains "only to body" must be distinguished in order to approach that which belongs only to mind and body together—the composite which is the primary theme. What pertains only to mind is indubitable or known by "the light of nature." It includes the certitude of the *res cogitans* (*Meditations* 3, AT 9:30; HR 1:160; CSM: 2:27), or the sphere of consciousness as bounded off by the criterion of certitude in *Meditations* 2, but also the indubitable truths present to mind that do not presuppose the knowledge of bodies. It therefore comprises the truth that "what has once been done cannot ever be undone" as well as the "innate" or eternal truths, the "common notions" and the principle of contradiction. A double criterion is apparently used, of subject matter and mode of cognition, but the latter marks off the former. Thus what pertains only to body, or is known by physics, and governed by "laws of nature," is also known "clearly and distinctly," but its dependence on the image to attest the existence of its corporeal object, as well as its subject matter, distinguish it from what pertains only

to mind. Certain properties such as weight, which belong to the subject matter of body, are known by experience of the composite. As regards man, what pertains only to body is the body-machine.

Descartes makes no attempt to constitute the third, the composite of mind and body, from what belongs only to mind and what belongs only to body; nor does he mention substance. He begins with the knowledge that he is a thinking thing, as in *Meditations* 2, where it was left indeterminate whether the *ego* could be a composite of mind and body. This knowledge he now takes in conjunction with the sensation of pain, by which "nature teaches me" that I am very closely united with a body, and so intermingled and mixed with it that I compound with it as one whole (AT 9:64; HR 1:192; CSM 2:56). Only by reliance on sensation, hitherto always dubitable in the work, does Descartes succeed in making the only argument in the *Meditations* for the unity of mind and body. This de facto unity is accompanied by acknowledged ignorance of the mode of interaction of mind and body. Why the pinching of the stomach walls causes the desire to eat, of which the mind is aware, is a mystery. No concern is expressed at the absence of a proof of the union or interaction of two substances, of which nothing is mentioned. Access to the wholeness of man is made by recourse to what must be regarded as a kind of prephilosophic experience. For Descartes this is no defeat of the demand for indubitability, but only an acknowledgment of the practical "teaching of nature" which was his prephilosophic starting point. Not by what belongs to mind alone, nor to body alone—nor by putting together what we know of each separately—can we account for pain and pleasure, all forms of which are comprised within this teaching of nature. The phenomena of the composite are irreducible to its components, the *res cogitans* and the *res extensa*; the latter are known by the intellect, but access to the composite requires sensation and imagination, which take a commanding position within the further development of the science of man. The function of the triadic distinction and the imagination is expressed succinctly in a letter:

> While metaphysical thinking which brings the pure understanding into play makes the notion of mind familiar, and while the study of mathematics, which exercises the imagination chiefly in the consideration of figures and movements, makes us accustomed to form the very distinct notions of body; it is by relying only on the activities and ordinary concerns of life, and abstaining from philosophical meditation, and studying the things which exercise the imagination, that we can learn to conceive the union of mind and body. (AT 3:692)

Purposiveness is the chief characteristic of the composite. The teaching of nature not only directs us to flee pain as bad and seek the pleasant as good, but "these perceptions [have] been placed in me by nature only to signify to

my mind what things are beneficial or harmful to the composite of which it is a part" (AT 9:66; HR 1:194; CSM 2:57). No combination of the consciousness of the *res cogitans* and the mechanism of the *res extensa* can yield the purposiveness of the organic composite. Teleology immediately comes into conflict with mechanism. A body sick with dropsy is considered from the conflicting standpoints of the composite, and of the science of the laws of body. According to the natural teaching of the composite the sick body is a case of the corruption or defect of nature; this is our normal and normative human standpoint. According to the science of physics, sick and healthy bodies both obey perfectly the same mechanical laws of nature. We may then speak of a Cartesian "antinomy" of mechanism and teleology. Descartes resolves the antinomy, not by some theoretical "reduction" of one to the other, but by a distinction between a practical and a theoretical human standpoint. Natural or teleological judgment indicates the ends (for example, health), but science (for example, medicine) supplies the means to that end. Teleological judgment indicates the ends (or "good and bad"), but only in a rough and vague manner; it must be supplemented by reflection on the ends, or the passions and virtues, without thereby becoming scientific judgment. Scientific judgment lacks causal knowledge of the pleasure and pain experienced by the composite, but Descartes gives no reason why the progress of science is forever excluded here, insofar as it does not involve "good and bad." Accordingly, we may say that the natural, nonscientific judgment knows, but never clearly and distinctly, goodness and badness of ends; the scientific judgment knows with clarity and distinctness, and in increasing quantity, the certain means to those ends. The typically modern paradox is established: what is good is not known to be true, and what is true is not known to be good.

Meditations 6 shows sufficiently that not the dualism of mind and body but that of mechanism and purposiveness (or of science and human experience) is the basic Cartesian dualism. This dualism is given its definitive treatment in the *Passions*. Descartes was aware that the simple reassertion of purposiveness in *Meditations* 6 was in effect a reinstatement of the premodern soul as a principle of motion (although not of life). Moreover, it was obvious that the range of purposive activity must be broadened to include the distinctively human life of the passions, including the passion with which philosophy originates. Descartes sought a broader meaning for the model of mechanism, within which the passions could be incorporated. Beginning in *Passions* 1 with the body-machine he sought to extend this model so as to include all the passions within a causal sequence of what came to be called "stimulus" and "response." Only here is the full conflict with the premodern soul finally joined. The premodern conflict of "higher" and "lower" parts of the soul was replaced by a "horizontal" conflict of passion with passion; the soul was "flattened out"; and

made "dynamic" by the distinction of strong and weak passions or "temperaments." While in general the "stimulus" was sought in external sensation, this procedure was plainly unavailable with certain passions, and especially not with the highest passion or virtue, that self-esteem called *générosité*. In some part of the soul arises spontaneously the desire to esteem oneself highly. We can only assert here that Descartes, in this and other ways, tacitly acknowledges the failure of his purpose to give a scientific or nonteleological account of the soul. Without full self-consciousness of its necessity, he was compelled to repeat in part the Socratic discovery of the *terra incognita*, the human experience of the human.

NOTES

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1. James Collins, *Descartes's Philosophy of Nature*, American Philosophical Quarterly Monograph Series (Oxford: Basil Blackwell, 1971), 80.
2. Étienne Gilson, *La Liberté chez Descartes et la théologie* (Paris: Félix Alcan, 1913), 437.
3. To Mersenne, AT 3:265.
4. To Mersenne, AT 3:297–98.
5. Martin Heidegger, *What is a Thing*? trans. W. B. Barton, Jr., and Vera Deutsch (Chicago: Henry Regnery, 1967), 99.
6. Gilson, 436.
7. Martin Heidegger, *Being and Time*, trans. J. Macquarrie and E. Robinson (London: SCM Press, 1962), 126.
8. L. J. Beck, *The Metaphysics of Descartes* (Oxford: Oxford University Press, 1965), 279.
9. Leo Strauss, *Natural Right and History* (Chicago: University of Chicago Press, 1953), especially chapter 5, "Modern Natural Right."
10. R. Kennington, "The Finitude of Descartes's Evil Genius," *Journal of the History of Ideas* 32 (1971): 441–46. [Reprinted herein. *Ed.*]
11. G. W. Leibniz, *Philosophical Papers and Letters*, ed. and trans. Leroy E. Loemker, 2 vols. (Chicago: University of Chicago Press, 1956), 2:630.
12. Beck, 86–87.
13. Heidegger, *Being and Time*, 71.
14. See discussion by A. Kenny, *Descartes: A Study of His Philosophy* (New York: Random House, 1968), 90–92, of Norman Malcolm, "Descartes' Proof that His Essence Is Thinking," in *Descartes: A Collection of Critical Essays*, ed. Willis Doney (New York: Doubleday, 1967), 312–37.

Chapter Eleven

René Descartes

Descartes has long been celebrated as "the founder of modern philosophy," but never of modern political philosophy. His epochal beginning appears to stand in splendid isolation from the older modern political tradition founded by Machiavelli: he never even composed a thematic discussion of political things. This suggests that modern philosophy and modern political philosophy are separate in origin and perhaps divergent in intention. A link between Descartes and the modern political tradition is visible, however, in his relation to Francis Bacon, the first great and avowed advocate of Machiavellian politics directed to the mastery of fortune or nature in human affairs. Copying even the language of Bacon, Descartes asserted that philosophy founded in a new method and directed to "the mastery and possession of nature" would attain the greatest glory for philosophy and the greatest benefit to society. His political teaching, therefore, is mainly concerned with the paramount political necessity, the establishment of harmonious relations between philosophy or science and society, or with the "Enlightenment" version of that relationship, the ruling relationship of modern times. Accordingly, d'Alembert, a prime mover of the French Enlightenment, could declare in the *Encyclopédie* (1751) that Descartes "laid the foundations of a government more just and more happy than has ever been seen established."[1]

Descartes's political teaching is partially obscured because of the notorious caution of his manner of writing: "I have composed my philosophy in such a way as not to shock anyone, and so that it can be received everywhere, even among the Turks."[2] His caution is evident in the fact that he never published praise or blame of any political philosophy in his own name, but only an anonymous praise of Bacon's *Great Instauration* and *New Atlantis*; whereas in private letters he accepted "the principal precept" of Machiavelli, "noticed

nothing bad" in his *Discourses on Livy*, and thought Hobbes's politics in his *On the Citizen* superior to his metaphysics.[3]

Descartes's political teaching is part of "the highest and the most perfect moral science" which is the end of philosophy altogether. "The whole of philosophy is like a tree, the roots of which are metaphysics," namely, knowledge of God and the human soul; "the trunk is physics, and the branches which come from the trunk are all the other sciences," but principally medicine, mechanics, and morality. "Just as it is not from the roots nor from the trunk of trees that one gathers the fruits, but only from the extremities of their branches, so the principal utility of philosophy depends on those of its parts that one can only learn last."[4] The ultimate branch is "the perfect moral science . . . which, presupposing an entire knowledge of the other sciences, is the last degree of wisdom." Yet it is almost universally held that nowhere in his published or unpublished writings can one find Descartes's "perfect moral science." This difficulty is inseparable from another that arises from inspection of the tree of knowledge. Man is treated twice, once as the second metaphysical root and once as the highest branch. But in each of the published versions of his metaphysics Descartes treats first the human soul and then God. Moreover, the simile omits any reference in the "roots" to the metaphysical principle coeval with the soul, namely, corporeal substance, from which the "trunk" presumably must grow. Hence, the poetic simile of the tree of knowledge is deceptive as regards its least visible part.

We are forced then to seek for a nonpoetic argument according to which man is the beginning and end of the tree of knowledge and "the perfect moral science" its "principal utility." Only in the *Discourse on Method* (1637) does Descartes offer an account of the beginning and end of his philosophy, of all the parts and their true order. Nevertheless, this writing is customarily depreciated today because of its popular character. Yet precisely its popular rhetoric is the first sign that the *Discourse* alone treats the peculiar difficulty of Descartes's supreme goal: the "perfect moral science" will come into full existence only by an unprecedented political cooperation between philosophy and the public.

Descartes writes that he began with the opinion of his Jesuit teachers that study would yield "a clear and certain knowledge of all that is useful to life." By the criterion of utility, he examined and rejected the learning of the Schools and the whole of ancient philosophy. One science alone, mathematics, he excepted; what "astonished" him was that "no loftier edifice had been built on the firm and solid foundations" of mathematics.[5] In place of that wonder at the fundamental perplexities that confront the mind that was the beginning of philosophy for the ancients, Descartes substitutes astonishment at a hitherto undreamed of possibility of human "creativity" that will banish

wonder: "I shall reveal to you secrets so simple that you will henceforward wonder at nothing in the works of our hands."[6] As contrasted with mathematics, "philosophy," which ought to supply the "foundations" of the sciences, is wholly disputable, useless, and uncertain. "Theology"—a term that Descartes uses here and everywhere to signify revealed theology exclusively—"shows the way to gain heaven," to which he "aspired as much as any other." But "revealed truths" are "above our intelligence": hence they are not clear and assured knowledge useful for life. The only moral writings he so much as mentions in his critique of the tradition are "the writings of the pagans"—they too lack foundations.[7]

Descartes opposes the goal of the classic tradition since he abandons the "speculations," or the quest for knowledge for its own sake, in favor of "useful knowledge." The justification of the rejection of the classic view appears from the treatment of the one discipline in the critique that treats of man's end. The "writings of the pagans" comprise the moral teachings of the Stoics especially, but also those of Platonic and Aristotelian political philosophy. While the pagan writings contain many "exhortations to virtue which are most useful," the "superb and magnificent palaces" of virtue are "built on sand and mud." What the pagans "called by such a beautiful name," that is, "virtue," is "often only insensibility, or pride, or despair, or parricide."[8] Pagan virtue, which claimed to be a mean, and the excellence of man, is therefore often an extreme, and an inhumane, presumptuous, poor-spirited, and even criminal extreme. As extremes the pagan virtues cannot be distinguished from the passions. "There is nothing in which the defective nature of the sciences that we have received from the ancients appears more clearly than in what they have written on the passions."[9]

Descartes replaced the distinction made by the ancients between the passions and the virtues with the distinction between good and bad passions. The basis of the ancient distinction was the view that the soul has parts, that certain parts are capable of listening to and obeying reason, and that by their means reason can establish and rule a natural hierarchy within the soul. Reason is autonomous because reason has its own proper object, or because "all men by nature desire knowledge," regardless of the utility of knowledge. Descartes rejects this view of a natural order of the soul: the ancients had not seen the acute "dependence of the mind" or reason on the passions or "on the temperament and the disposition of the organs of the body."[10]

Descartes's twofold reflection on the power of the passions and the promise of mathematics leads directly to his argument for a new method which is at the same time his primary political reflection. Since the virtues are replaced by certain passions, the "useful for life" must be understood as that which serves the ends of the passions. Among the passions, however, distinctions

must be drawn between good and bad, useful and useless, noble and ignoble passions. More precisely, what is required is a comprehensive passion, or a passion that can supply a principle of order to the other passions, hence necessarily the passion capable of mastering the other passions. This most useful passion will thus be the noblest and most perfect master passion. Descartes begins his argument for method with the principle "there is less perfection in works composed of several portions, and carried out by the hands of various masters, than in those on which one [master] has worked."[11] What is made wholly by one master is wholly in the power of that master: thus he begins as the Stoics had done, with what is wholly in one's own power, without restricting this to "one's own thoughts." His principle is articulated by a series of examples of masters that culminates in reason as a form of mastery. But since it is "the will of some men using reason" that leads to perfect mastery, reason is in the service of the will, or as Descartes will later say, of the supreme passion he called "generosity."

The examples are seven: (1) the single architect of a building; (2) the single engineer of the buildings of a city; (3) the general case of the single "prudent" legislator who gives laws to a people; (4) the special case of the single divine legislator, God, who made "the ordinances" of "the state of the true religion," or of Christendom, which "must be incomparably better regulated than all the others"; (5) the special case of the single human legislator of pagan Sparta—the only human legislator ever praised by Descartes—even though many of the Spartan laws were "very strange and even contrary to good morals"; (6) the simple reasoning made naturally by a single man of "good sense"; and (7) the final, hypothetical case of a single man who had perfect use of his unaided reason from infancy, unaffected by "appetites or preceptors."[12]

The series of examples is an ascent: it ascends from lower practical arts concerning inanimate things to the highest (including the divine) practical art of legislation, and thence to the highest theoretical "mastery," the use of unaided human reason. Since all the masters are authors of "works," "work" must include the highest use of reason: mastery is neutral to the distinction between thinking and making, philosophy and *techne*. Philosophy is henceforth described, as previously by Bacon, as "architecture": the organic simile of "the tree of knowledge" is deceptive. The first meaning of "perfection" in the series is the unity of the "work" deriving from the singleness of the master. To this he adds a second, the magnitude of the subject matter on which the master works. Therefore, Descartes's mastery will be as comprehensive as the series, or such a theoretical mastery of the whole or nature, the object of greatest magnitude, as will also comprehend the highest practical mastery, "legislation" of the greatest magnitude. Political science, the architectonic or

master art according to Aristotle, is replaced by philosophy understood as theoretical mastery, or "architecture." To unity and magnitude Descartes adds, by the final example, a third ground of perfection, namely, that source within the master from which perfect mastery proceeds: the unaided use of human reason. All three grounds take their place in the definition of that master passion that Descartes calls the highest virtue, "generosity": the sensation in oneself of "a firm and constant resolution . . . never to fail of one's own will to undertake and execute all the things [one] judges to be the best . . . which is to follow perfectly after virtue."[13] Evidently "generosity" has not the sense of "liberality" of its English counterpart.

Yet the final example is hypothetical—the master who had perfect use of his unaided reason from infancy, unaffected by "appetites or preceptors." Of himself Descartes observes that he was sufficiently free from the passions to be able to reflect, at the outset of his chief reflections in the *Discourse* and *Meditations*, because of chance rather than virtue. As for his preceptors, he speaks of "the religion" in which he had been "instructed from his infancy." He must therefore find a procedure or a method that will purge the mind of all opinions and beliefs that depend on "appetites and preceptors." Only the construction of a method, and not the natural use of natural reason, can overcome the natural disproportion between the rate of growth of the appetites or passions and that of reason. For the prejudices received from our appetites or passions beginning in childhood govern our sense perceptions and cannot be corrected by reason which naturally serves those passions. Hence all previous philosophy that began with sense perception and lacked a method for purging the mind of prejudices necessarily went astray. Method can master the natural defects or disproportions of man's nature by taking as its model mathematics, which is certain because it owes nothing to the senses or to the body. But to be the comprehensive mastery as well as to master the body, method must become comprehensive mastery of all body, that is, mathematical physics.

That Descartes's highest example of mastery, or "generosity," necessarily includes politics or "legislation" becomes fully evident from his immediately following reflection on "reformations."[14] The first rule of method demands the rejection of all opinions that are not "clear and distinct," or the "reformation" of those uncertain opinions that are the "foundations" of one's own life. As contrasted with this private "reformation," Descartes asks whether it is desirable that states and nations be reformed by a private individual, and if desirable whether it is legitimate and possible. But the opinions a private individual must necessarily doubt are also the ruling or constitutive opinions and therefore "foundations" of states.

The connection of private and public reform is peculiarly evident in that private reform of defects in "the body of the sciences" can lead, and perhaps

ought to lead, to reform in "the order established in the Schools" to teach the sciences, and the Schools are the authoritative repository of the opinions that are the "foundations" of the "great bodies," that is, states and nations. Descartes thus agrees with the classic view that opinion is the element of society, the binding ligament that gives it unity and motion. Publication of his private reform would necessarily raise the question, therefore, of whether he intended a public reformation: again he agrees with the classics that philosophic questioning when made publicly tends to erode the element of opinion in which society lives. Moreover, the jeopardy to the foundational opinion of society is unprecedented in the case of Descartes's philosophy, because his method demands the blanket attainder of all opinion that lacks the certitude of mathematics. Yet Descartes did publish his method, even writing in a popular mode and in the vulgar tongue, and thereby indicated that he intended a public reformation.

Descartes's political intention in the *Discourse* remains obscure without at least brief clarification of the three chief features of its rhetoric. Descartes is often believed to be a political conformist because his provisional morality begins: "the first [rule] was to obey the laws and customs of my country, retaining constantly the religion in which God has given me the grace to be instructed from my infancy."[15] Apart from the provisionality of the rule, it is less often observed that in the center of the same paragraph he says that "in the corruption of our morals there are few people who wish to say all that they believe." He was "forced to add these rules" of provisional morality because otherwise "pedagogues and the like would say of him that he is without religion and faith and seeks to overthrow all that with his method."[16] This prudential character of its rhetoric blurs the meaning of the principal literary feature of the *Discourse*. Just as the argument on supreme mastery leads to "my way," the way of the individual Descartes which is unprecedented, unrepeatable, and needless of repetition, so likewise his act of publication is entirely unique. The form of the *Discourse* is therefore that of an autobiography of the first and final founder of philosophy. Its third rhetorical feature, its popularization of philosophy, becomes intelligible when one learns in what sense the founder is in need of nonphilosophers.

Descartes's act of publication is premised, first, on the desirability of the reform of existing states, which is evident "from their diversity alone," but ultimately on the desirability of a permanent reform of the relations of philosophy and the public. Since "diversity alone" evidences imperfection, there will be but one good regime characterized by the perfect relation of philosophy and the public. His particular criticisms of contemporary society imply the general character of the permanent reform. The prime authority for existing "foundations" breeds civil war: "the controversies of the Schools, by in-

sensibly making those who practice themselves in them more captious and obstinate, are possibly the chief causes of the heresies and dissensions that now exercise the world."[17] The entire reflection on mastery, Descartes's famous day in the *poêle*, begins with a reference to the "wars" in Germany and ends with a reference to the war in Holland: it is framed by the post-Reformation wars between the Catholic and Protestant powers of Europe. The "state of the true religion," or Christendom, exhibits not the unity of its founder but self-diremption.

The question of the legitimacy of public reformation by private individuals is subordinate for Descartes to that of its possibility, for the reason that "fortune" is a title to legitimate political power. He "absolutely disapproves of those turbulent temperaments who never fail to plan some new reformation, although they are called neither by fortune nor by birth to the management of public affairs."[18] This unusual constriction of the bases of legitimacy to fortune and birth is still more surprising if one considers fortune as a claim to legitimacy: if fortune legitimates, then every attempt to seize power has the prospect of legitimacy, since an individual cannot know he has been "called by fortune to the management of public affairs" prior to success. Since chance or fortune set Descartes himself on the right path to the discovery of the true "foundations," his project is blessed with legitimacy from its inception. To show the legitimacy of supreme mastery Descartes must show the possibility of the total mastery of fortune. But "one must entirely reject the vulgar opinion that there is outside of us a Fortune that makes things happen or not happen." As with Machiavelli, whose stamp on Descartes's treatment of the goddess Fortuna is unmistakable, it is nature that must be mastered. Still the immediate issue is but the difficulty of public reformation by a private man: it will be solved for Descartes by the attractive power for all men of the "fruits" of his philosophy and the strategy used to advertise them.

Once the general principles of physics are known, the "project" of Descartes becomes a "practical philosophy" "very useful for life" that can supplant the "speculative philosophy taught in the Schools." By the "mastery and possession of nature" man can invent "an infinity of artifices that would enable us to enjoy, without any pain, the fruits of the earth, and all the comforts that are to be found there."[19] The fruits of the tree of knowledge will undo the consequences of the Fall in the Garden, or, more precisely, will effectively deny its truth. The *Discourse* culminates then in a promise of a heaven on earth, or it imitates Bacon's writing on method, the *New Organon*, whose subtitle refers to "the kingdom of man." The science that leads to human happiness is not the traditional study of the excellence of the soul, moral and political science, and still less the "theology" that "shows the way to gain heaven," but medicine, the science of the body. "Health is without doubt the first

good and the foundation of all the other goods of this life." Medicine is also the means to the prolongation of life, but above all it is the science that produces "wisdom," the ultimate fruit: "the mind depends so much on the temperament and on the disposition of the organs of the body that if it is possible to find some means which generally renders men wiser and more skillful than they have been hitherto, I believe that it is in medicine that one must search."[20]

To govern the relations between society and the philosophy that promises such fruits, Descartes asserts that there is a "law that obliges us to procure so far as it is in us, the general good of all men."[21] This law, the only categorical obligation ever asserted by Descartes, is stated but once in his writings, and no argument is ever offered for it. He declares that the law obliged him to publish his philosophy lest he "sin," but he never claimed to derive the law from "revealed truths." To account for this amazing mixture of bold assertion and resounding silence, we observe first that Descartes invoked the law only when he had discovered "general notions regarding physics": he did not regard his metaphysics, which contained what he claimed were the first demonstrative proofs of the existence of God and of his perfections, as of sufficient benevolence to the public to require publication. Indeed, immediately after expounding his metaphysics in the *Discourse* (Part 4), he turns to his physics in which he "discovered many truths more useful and more important than all [he] had learned before, or even hoped to learn."[22] In the context of the discussion of publication in the *Discourse* (Part 6), Descartes tacitly reformulates the law as a hypothetical obligation only, which binds those who desire the end or the fruits of the new philosophy to seek the means to that end. The means are the required experiments, or the exchange of experiments between qualified people, or the political conditions that will sanction and promote such an exchange. The hypothetical character of the obligation appears in Descartes's "promise" that he would "show so clearly the utility that the public could receive" from his philosophy that he "would oblige all those who desire in general the good of men, that is to say, all those who are in fact virtuous and do not merely seem so, not only to communicate to me [the experiments] they have already made, but also to aid me in the search for those that remain to be made."[23]

The "good of men"—the term lacks the sense of community of "the common good"—now comprises chiefly what all men have always sought as individuals or through society, namely, the satisfaction of needs, comfort, health, and long life, and this drastically lowered view of the common good is the standard of virtue. Thus Descartes, in common with the founders of modern political philosophy, reversed the relation of virtue and the common good as understood by the classics, revising both in the process. The "law" of benevolence is doubly hypothetical in that it obliges one to seek the means only if one accepts the desirability of the end of utility, but also only if the

true means, the true physics or the science of "fruits," is available. It has its locus therefore not primarily in the relations of citizens to each other or with the sovereign, but in the mutual relations of philosophy or science and society. For this reason, but even more for the additional one that philosophy or science must be the principal donor and society the beneficiary of utility, Descartes did not offer any teaching on justice or natural right. "Generosity," the highest virtue of philosophers or scientists, excludes or replaces justice because it is based on a view of the soul different from that of either the ancient or modern teachers of natural right.

Descartes's first beginning in a new method is completed by a mathematical physics that forced him to confront the status of the soul and its knowledge in the metaphysical argument most fully presented in the *Meditations* (1641). He resolves to doubt absolutely, or rather to reject absolutely, every opinion or source of opinion in the slightest degree dubious, in order to establish "foundations" for the edifice of science. In the sequel, this resounding demand for "universal doubt" is carefully restricted; in *Principles* 1.10, its universality is denied; Leibniz remarked that the demand to "doubt all things" is perhaps meant "to stimulate the sluggish reader through novelty." Doubt is a procedure devised to suspend our natural trust in the senses and the images that derive therefrom—part of what Descartes calls "the teaching of nature" and came to be called "the natural attitude." To test the dubitability of what does not depend on trust in images—especially mathematics which does not belong to opinion—Descartes invokes a God "who can do everything" and therefore can make false the most self-evident reasonings, that is, that the sum of two plus three is five. Since God, on this view of omnipotence, can suspend the principle of contradiction, all human reasoning would be at an end, unless the perfection of God necessarily excludes such deception. Since knowledge of God is as yet unavailable, or because God is but "an old opinion" and no solid reason for doubting, God is replaced by an "Evil Genius" who is not omnipotent and does not jeopardize mathematics nor that reasoning that is independent of trust in images.

The thought underlying the poetic fiction of the Evil Genius is prepared by the introduction of the "atheist" view that man and his thinking are the result of blind fate or chance or a continuous series of antecedent causes. The atheist view is often regarded as a more radical reason for doubting than the omnipotent and possibly evil God, because Descartes contends that the less powerful is man's "author" the greater is the likelihood of human deception. Yet this assertion concerns difference of power alone, and hence [is] not a comparison with a possibly evil God. Since it is as repugnant to a perfect God that he sometimes may allow us to be deceived as that he always do so—and it cannot be doubted that he sometimes allows us to be deceived—the divine

jeopardy to human knowing remains an acute difficulty throughout the *Meditations*. In the context of doubt, the atheist supposition serves to question the harmony of the knower and the known, which appears to imply that the whole is ruled by intelligence. But Cartesian doubt takes a step beyond the premodern rejections of a ruling intelligence by abandoning as well the trust in the harmony of the images of sense and their objects. The images may be wholly deceptive; "life is a dream" may describe the natural situation; nature, indifferent to our desire or need to know, is personified by the Evil Genius.

More closely regarded, the natural trust in the similarity of image to thing had been rejected by the mathematical (or "nonempirical") character of the scientific concepts of extension, figure, magnitude, etcetera. Yet to assert the dissimilarity of image to thing would seem to imply the existence of things "outside the mind" with which they are compared, and knowledge of this existence would seem to depend on the image. Does not the rejection of "the similarity thesis" of "the teaching of nature" require trust in nature as regards "the existence thesis"—as Descartes sometimes suggests? Nevertheless, in the *Meditations* he customarily treats them as of equal dubitability. Accordingly the existence thesis, or "the great inclination to believe" that bodies exist, must ultimately require the goodness of God as a guarantee of its acceptability. If we object that the same guarantee would seem to be available to guarantee our strong inclination to believe that things resemble our images we nonetheless must recognize that this would contravene the demands of Cartesian science. The Evil Genius renders dubious the existence of "all external things" or the bodily, including the body of the doubter, and a fortiori by implication the similarity thesis. Only these two theses are doubted within the range of "universal doubt." It is logically possible to doubt the existence of the bodily, or of "matters of fact" in Hume's phrase, or of the teaching of nature, while asserting the existence of the doubter; it is even necessary to assert that existence. Hence "this proposition, I am, I exist, is necessarily true each time that I pronounce it or that I conceive it in my mind." Since the knowledge that "I am" does not depend for its truth on the knowledge of body, or on any knowledge of nature or being, it has an "epistemological" priority to any subsequent assertion of a "metaphysical" kind.

This principle is the "Archimedean point" that establishes the existence of the knowing ego within the whole, whose enmity is overcome by the mathematical physics of the mastery of nature. Only following the determination of the principle does Descartes ask what mind or thinking is: the *cogito* is therefore prior to, and independent of, any determination of the materiality or immateriality of the human mind. Descartes compromised the absolute autonomy of the thinking ego, according to most contemporary scholars, by proceeding to prove the existence of an omnipotent God who is possessed of

an infinity of infinite perfections: God is therefore the first principle or cause of all things, and so of man and man's knowledge. Descartes made the difficulty of interpreting his metaphysics almost insuperable by also asserting that the finite human mind cannot know anything infinite, and by concluding therefore that "God is incomprehensible."[24] Resolution of these difficulties will vary as one agrees with most contemporary scholars that Descartes published his essential thought with complete candor, or with earlier men such as Leibniz who said, "Descartes took care not to speak so plainly [as Hobbes], but he could not help revealing his opinions in passing, with such address that he would not be understood save by those who examine profoundly these kinds of subjects."[25] However this may be, Descartes never claimed to derive from the knowledge of God any knowledge of man's duties or rights; whereas from "the infinite perfections of God" he did claim to derive "the laws of nature."

Descartes's metaphysical argument furnished him with one source of the understanding of the soul that underlies his theory of "generosity." The second source of his view of the soul is physics, or the "medicine" that treats "the machine of our body," most fully presented in his final publication, the *Passions of the Soul* (1649). According to his metaphysical argument, the free will is a function of mind or soul, an immaterial substance, separate from corporeal substance, yet able to act on corporeal substance, specifically on the human body, in a manner that Descartes admittedly did not adequately explain. This metaphysical view is reflected in the first part of the definition of generosity, which is the "knowledge" that "nothing truly pertains to [man] but this free disposition of his volitions, nor any reason why he should be praised or blamed except that he uses it well or badly." However, according to the physical argument, the heat of the heart "is the corporeal principle of all the movements" of "the machine of our body," while "the first cause" of the error of "the ancients" is the belief that "the soul gives movement to the body." Hence the metaphysical argument would repeat the ancient error. On the physical argument, thinking or consciousness is awareness of the motions of the (wholly corporeal) animal spirits, which awareness Descartes did not adequately explain; and the will is not free but acted on by the passions: "the principal effect of all the passions in men is that they incite and dispose their soul to will the things to which they prepare the body." This second or physical view is reflected in the second part of the definition of generosity, "that [man] is sensible in himself of a firm and constant resolution . . . never to fail of his own will to undertake and execute all the things that he judges to be the best, which is to follow perfectly after virtue." "Resolution" Descartes understands as a species of courage which is a "certain heat or agitation" of the animal spirits that "disposes the soul powerfully to bear itself to the execution

of the things that it seeks to do." This physiological view of the soul best explains why Descartes can say he speaks in the *Passions of the Soul*, whose first part treats "the whole nature of man," "as a physicist."[26] (The seventeenth-century English philosopher Henry More openly avowed the physiological interpretation of the Cartesian soul, which doctrine he called "Nullibism.")[27]

However we view these alternatives, we may say that "generosity" is awareness of one's identity in the quality of one's will or resolution. The freedom of the will "in a certain measure renders us like God in making us masters of ourselves, provided that we do not through cowardice lose the rights which he gives us."[28] Since cowardice deprives man of rights, they belong to the brave or resolute, hence peculiarly to the "generous." Yet "cowardice has some use when it exempts us from taking the pains that we might be incited to take by probable reasons, if other more certain reasons, which have caused them to be judged useless, had not excited this passion."[29] Hence very certain reasons may perhaps deprive the generous of their God-given rights. However this may be, no argument and no scriptural basis is ever offered by Descartes for the existence of these rights, nor does he ever mention them again.

The political meaning of generosity emerges by contrast with Aristotle's virtue of "magnanimity," of which generosity is a revised version, according to Descartes. Magnanimity is a cultivated habit or disposition of the soul, whereas Descartes chooses the new name "generosity" precisely because it is not cultivated but an ingenerate, or congenital, temperament at least partly physiological. Generous minds, or "strong and noble minds," have their strength from birth, or by nature, hence are "masters" by nature, a natural nobility or aristocracy. Whereas magnanimity was for Aristotle a comprehensive moral virtue and therefore distinct from and lower than theoretical virtue, generosity is Descartes's highest virtue simply: since its supreme object is "mastery of nature" through mathematical physics, the very distinction between theory and practice becomes doubtful. Magnanimity comprehends and presupposes the other virtues, hence in particular the virtue of justice, and is therefore "a kind of ornament of the [other] virtues."[30] Generosity, on the other hand, does not presuppose the other virtues, and Descartes does not mention justice as a virtue or passion; generosity is rather "the key to all the virtues."[31] Therefore, Descartes does not offer any kind of natural right teaching. As contrasted with the ancients, the absence of any natural order of the soul precluded a natural right teaching of the traditional type. He shared with Hobbes, the chief founder of modern natural right doctrine, the view that reason serves the passions. In the decisive context of the comparison of man and the brutes, reason is a "universal instrument":[32] what distinguishes man from

the brutes is a unique means, not a specifically different end. But as contrasted with Hobbes, he viewed political society from the perspective of the strong or generous minds whose sense of the strength of their resolution, their strongest passion, is unique to them. Hence he rejected the egalitarian perspective of Hobbes's *On the Citizen* according to which the passion for self-preservation is the strongest passion of all men, and therefore the basis of natural rights.

Generosity is a political passion or virtue not merely because its object is that mastery of nature which is productive of goods for all men. Knowledge of generosity is the primary part of that "wisdom," or perfect moral science, which teaches man to be master of and hence to enjoy the passions, by which man "tastes the highest sweetness in this life."[33] "Epicurus was not wrong, when considering in what beatitude consists . . . to say that it is pleasure in general." However, the "satisfaction and contentment" of the consciousness of one's own strength in the mastery of nature are not incompatible with the pleasure of glory accorded by others for the benevolent results of mastery: the highest philosophic and political rewards may coincide in the same soul. Descartes does not "profess to scorn glory as did the Cynics"[34] and the Epicurean tradition. The quest for glory may indeed disturb "contentment" or "repose" of mind, but glory as respect of "the people" or the vulgar for "the exterior of our actions" is also pursued for the sake of safety and hence "repose." The true glory is the recognition of other "strong and noble minds" for the benevolence of what is not visible externally, the perfect moral science or "wisdom." "It is a reason to esteem oneself to see that one is esteemed by others."[35] The primary self-esteem or generosity is accordingly enhanced by the esteem or glory that is granted for benevolence, and benevolence thus understood becomes the substitute for justice.

Descartes's "reformation" begins with the transformation of philosophy into the project of mastery of nature, of virtue into the science of the passions, and of perfect theoretical and practical virtue into the single virtuous passion of generosity. Since mastery of nature is a means to a practical end for all men, philosophy must bear a novel relation to society. The relation is a compound of a threat to the traditional foundations of society and a promise of benevolence by the fruits of mastery of nature. Yet this jeopardy is redeemed by the fact that the "universal doubt" that method demands is so far from doubting the view that the good is the useful that it is in fact based on this view, and the useful is needed by all societies always. Therefore, Descartes's project can be welcomed by all societies except those based on traditional virtue or piety, or it is relatively neutral to the differences among types of regimes. The support of the project of science by the most liberal as well as the most tyrannical regimes in modern times offers some evidence for this

neutrality. For this reason primarily Descartes never articulated a view of the best regime. The convergence of the goals of philosophy and society is not destroyed by the fact that the useful sought by the generous minds is not identical with the useful sought by society. For the final wisdom of the passions, and the prize of glory, sought by the generous, demands the same means, that is, the advancement of science that is required to achieve the useful fruits sought by society. The fundamental premise of the harmony of philosophy and society is that all men are ruled by the passions.

The common means, the advancement of science, cannot be achieved without a certain transformation, or new "legislation," of social institutions. Science will advance only if the free exchange of "experiments" or free communication is sanctioned within the borders of society, but also between societies; it will achieve its promise only if society also promotes science by the endowment of scientists with safety, income, and deference. This free exchange cannot be limited to exchange of knowledge: societies, or more precisely, the political authorities, are not competent judges of knowledge. Hence society must not only sanction the competent or the scientists as judges but must sanction all communication of doctrines. Society therefore necessarily surrenders control of its opinions, that is, its "foundations," since the ruling opinions of society are necessarily affected by the free communication of doctrines. Moreover, society will be profoundly affected by "the infinity of artifices" or technology of science. Society cannot have knowledge of science but only belief in the benevolence of science. But since society had originally no acquaintance with the benevolence of science, or its social requirements, it was necessary for Descartes, following Bacon, to "enlighten" society regarding both.

"Enlightenment" may be said to have three meanings. It is an unprecedented type of political action undertaken by the founders of modern philosophy and continued by most of their followers that forges the bond between philosophy or science and society in the common enterprise of "the mastery of nature." It may also be said to be the rhetoric employed in forging the bond, and the relationship established by it. Since the optimum condition of the progress of science demands the cooperation of the scientists of various countries, and hence freedom of communication among them, and requires as well the spread of knowledge of the conditions of the advancement of science, enlightenment implies "open societies" linked with each other in the common enterprise of the mastery of nature. It is necessarily antithetical to any societies, or elements in a society, that seek the autonomous cultivation and preservation of their own morality and way of life. Thus Enlightenment is by intention a universal politics, potentially of global magnitude, and the first of philosophic origin.

Because it is a compound of a promise and a threat, the Enlightenment

rhetoric is divisive of society, both at the time of its inception and after its victory. Descartes indicates its promise to three kinds of men. In the *Discourse* especially he appeals to the men of "good sense" or "the public," a broad middle range of mankind that thinks itself adequately provided with "good sense," which Descartes provisionally and deceptively equates with reason. The truth underlying this flattery is that the men of good sense reason well on "matters that especially concern [them]" and regarding which errors of judgment "punish them soon afterwards":[36] their rationality is rooted in their self-interest or self-preservation in the here and now, and not what will punish them in another life. Descartes's rhetoric advertises to them that they are the beneficiaries of the project that produces "the fruits of the earth without pain," and of the social conditions of the progress of the project. They are the natural allies of the second group, the generous minds, or the scientists who build on his foundations and the *philosophes* who propagate his reformation. One may distinguish as a third group the political rulers proper who necessarily welcome Descartes's advocacy of knowledge useful for society, as well as his opposition to the political ambitions of "reformers" who believe God has given them "sufficient grace and zeal to be prophets."[37]

He invites these groups to join in common opposition against those opponents who draw their beliefs from "the ancient books, their histories and their fables." Together with "reformers" and "prophets" he places those who, believing themselves "devout" and "great friends of God," though in fact "only bigots and superstitious," have "committed the greatest crimes that can be committed by men, as betraying cities, killing princes, and exterminating entire peoples, only because they did not follow their opinions." The popular support of these zealous leaders comes from "the weak minds," a term used repeatedly by Descartes to designate those who are prone to "superstition," and whose "consciences" are agitated by "repentances and remorse,"[38] the human type most opposed to "the strong and noble minds." But these latter have a remedy available, the science of the passions: "even the weakest minds could acquire a most absolute empire over all their passions if one employed enough industry to train them, and to conduct them."[39] Behind the zealous stands the authority of "the School," or Scholasticism: "the monks have supplied the opportunity for all sects and heresies throughout their theology, that is to say, their Scholasticism, which before all must be exterminated."[40] Because of this alliance of friend against foe, d'Alembert could "regard [Descartes] as a chief of conspirators who first had the courage to raise himself up against a despotic and arbitrary power."

Yet Descartes's Enlightenment rhetoric must vanquish more fundamental enemies to ensure the lasting success of his project. Not only his "preceptors" or the books of Latin Christendom "corrupt the natural reason," but so also

do the "Greek and Latin books."[41] He made plain that his only rivals on the plane of his endeavor, or those alone "whose writings we possess" who sought out "the first causes and the true principles," were "Plato and Aristotle." Hence those whose "prejudices" most oppose his project are those who have "most studied the ancient philosophy." His rhetoric has then the function of opposing the whole tradition of humanistic learning, which required him to oppose tradition simply. Since the view that the good is the old or the traditional can never be fully eradicated, Enlightenment rhetoric has a permanently divisive social function. Descartes succeeded in turning the questioning of the identity of the good and the old by classic philosophy against the classics by identifying them as the old or the tradition. The classic tradition appeared to him, as it had to Stevin and Grotius, as a corruption of the wisdom of the golden youth of the world in some pre-Socratic *siècle sage*.[42] Since Descartes knew that some less than philosophically precise belief regarding the whole is required as a foundation for society, he sought to supply a substitute for tradition that would foster the project of science. By a scientific "fable of the world," or by what purported to be a scientific account of the genesis of the heavens and the earth, of the visible universe and all its phenomena, he established the belief that science is master of the whole; and by the promise of the progress of science toward infinite benefits he and Bacon established the "idea of progress," or the belief that the good is the future whose benevolence owes nothing to tradition, to nature, or to God.

It was not Descartes but Bacon who first proposed a "project" that promised maximum benevolence to society by a universal method, and hence inaugurated the politics of Enlightenment. Descartes following Bacon may be said to have accepted but revised Machiavelli's earlier fusion of the highest glory or mastery with the highest benevolence through a political teaching devoted to the mastery of chance or nature in human affairs. It was initially Machiavelli's "realism" that taught that reason does not by nature seek the pure truth but serves the passions, or that "the natural force of man's judgment" does not suffice, as Bacon put it, and hence reason must be "equipped" with the artifact of method, or that reason must be "conducted" by the "work" or art of method, as Descartes said. Precisely Machiavelli's incipient critique of the impurities of natural reason demanded that nature be remedied, or rather mastered, by art, or by the construction of a method. Whereas Machiavelli thought that the understanding of man must descend to include that of the beast in order to ascend to the mastery of human nature, Bacon thought that a first mastery of the human understanding itself must be gained by descending to learn from the mechanical arts so that the ascent to the mastery of all nature "be done as if by machinery." Hence on the basis of Machiavelli's "realism," Bacon attempted to surpass Machiavelli, as is especially

evident in the *New Organon* (1.129). For the "endeavor to establish and extend the power and dominion of the human race itself over the universe" through a universal method is more benevolent than the teaching of political modes and orders. "The benefits of discoveries may extend to the whole race of man, civil benefits only to particular places; the latter last not beyond a few ages, the former through all time"; "civil reformations" usually begin in violence, but discoveries confer benefits without causing sorrow to any.

This argument in its entirety is a germinal part of the project of Descartes. The genealogy of Descartes's project is especially visible in the amazingly similar statements of the doctrine concerning "reformation" of political bodies by a private individual in the *Prince* (chapter 6), the *New Organon* (1.129), and the *Discourse* (Part 2). According to Descartes, Bacon did not see with sufficient clarity that the new method must be mathematical to be certain or "systematic," or that it required a new mathematics and a mathematical physics and a corresponding determination of the soul. By these momentous amendments,[43] but on the foundation laid by Machiavelli, Descartes became "the founder of modern philosophy."

NOTES

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1. J. d'Alembert, *Discours préliminaire de l'Encyclopédie*, ed. L. Ducros (Paris: C. Delagrave, 1930), 104.
2. AT 5:159. [References to AT replace citations to the Pléiade edition in the essay as originally published. *Ed.*]
3. AT 9:320; 4:67.
4. AT 9–2:15.
5. AT 6:4–6, 7.
6. AT 10:505.
7. AT 6:7–8.
8. AT 6:8.
9. AT 1:27.
10. AT 6:62.
11. AT 6:11.
12. AT 6:11–13.
13. AT 11:45–46.
14. AT 6:13–15.
15. AT 6:22–23.

16. AT 5:178.
17. AT 9–2:18.
18. AT 6:14.
19. AT 6:62.
20. AT 6:62.
21. AT 6:61.
22. AT 6:41.
23. AT 6:65.
24. AT 9:37; 7:46, 9.
25. G. W. Leibniz, *Sämtliche Schriften und Briefe*, ed. Preussische Akademie der Wissenschaften, 2.1 (Darmstadt and Leipzig: 1923–1954), 506.
26. AT 9:326.
27. *Philosophical Writings of Henry More*, ed. F. I. MacKinnon (Oxford: Oxford University Press, 1925), 183–96. Descartes, "the prince of the nullibists," "befooling" his readers with his "jocular subtilty," contended that "incorporeal spirits" exist, "but would be found to do it only by way of an oblique and close derision of their existence, saying indeed they exist, but then hiddenly and cunningly denying it, by affirming they are no where" or *null ibi*.
28. AT 11:445.
29. AT 11:462–63.
30. Aristotle, *Nicomachean Ethics* 1124a1.
31. AT 11:454.
32. AT 6:57.
33. AT 11:488.
34. AT 4:276; 6:9; 11:483.
35. AT 11:482.
36. AT 6:9, 12–13.
37. AT 6:61.
38. AT 4:529; 6:23–24.
39. AT 11:370.
40. AT 5:176.
41. AT 6:77; 9–1:8, 11; 10:496, 503.
42. AT 5:373–76.
43. For these steps, see especially J. Klein, *Greek Mathematical Thought and the Origin of Algebra*, trans. Eva Brann (Cambridge and London: MIT Press, 1968), 197–211.

Chapter Twelve

Analytic and Synthetic Methods in Spinoza's *Ethics*

1

The overarching thesis of Spinoza's philosophy can be simply stated. Final knowledge of the whole ("God or Nature") in its necessitated, nonteleological character is the necessary condition for human happiness or freedom. This thesis of itself does not evidently demand (a) the *order* of exposition of the *Ethics* descending from the one Whole or God in Part 1 to the parts, modes, or finite beings in *Ethics* 2–5. It does not demand, to express the point differently, that metaphysics be absolutely prior to physics in the order of knowledge. Moreover, it does not evidently demand (b) the *form* of exposition of the *Ethics* as demonstration "in geometric order." If we consider Spinoza's two major writings, the statements of the *Tractatus Theologico-Politicus* (henceforth "*Treatise*") that describe philosophic order and method are in striking discrepancy with the procedure of the *Ethics*. In the *Treatise* an empirical "history of nature" (*historia naturae*) is "the foundation of philosophy"; history of nature is prior to "definitions of natural things"; the "examination of natural things" begins not with a metaphysics of substance, as in the *Ethics*, but with what is "universal and common to the whole of nature . . . as motion and rest."[1] The *Treatise* statements about the nature of philosophy do not require or even mention geometric order or method.

In the discrepancy between the *Treatise* and the *Ethics* lies the initial basis for the great dispute over the interpretation of Spinoza. The traditional interpretation, which included Hume and Mendelssohn as well as Bayle, understood Spinozism as an atheistic naturalism; it discounted the order of the *Ethics* from God or infinite substance to finite beings; in certain cases it even regarded the geometric order of demonstration as a "pretense."[2] The *Treatise*

and the *Ethics* must be understood together; the *Treatise* is not to be dismissed as merely a negative critique of religious prejudice. Precisely as a "prephilosophic" critique of prejudice it would be an indispensable beginning of Spinozist philosophy. In the pantheist interpretation of Spinoza, which began primarily with Herder in the 1780s and remains dominant today, the *Treatise* has lost its importance. The *Treatise* need not be discussed because its conclusions, as distinct from some of its arguments, are largely accepted. Insofar as philosophy still regards it as necessary to discuss the conflicting claims of philosophy and biblical revelation, it does so on the basis of a tradition of biblical interpretation that has been decisively altered by the *Treatise*. The doctrine of the *Ethics* remains moot; the success of the *Treatise* is so considerable that it has receded from the philosophic stage. In recent decades study of Spinoza's philosophy is almost exclusively study of the *Ethics*. The absence of the *Treatise* is not felt precisely because the *Ethics* is understood as a self-sufficient writing which descends by geometric demonstrations from the infinite divine whole to the finite beings. This means not only that the question has been begged regarding the interpretation of the *Ethics*, but also that the arbitrariness and limitation of its "geometric order"—so often acknowledged—are deprived of a solution.

The only form in which these issues are found in recent discussion (for example, Wolfson, Gueroult) is in the question about the appropriateness or necessity of "geometric" demonstration for the doctrine of the *Ethics*. But even as regards its *form* of demonstration as distinct from its *order* of exposition this discussion has lacked clarity about the alternative. The alternative to the geometric method is the analytic method. Few today examine, and most merely allude to, the one writing in which Spinoza explains these alternatives Only in the preface to his *Principles of Descartes's Philosophy* (henceforth "*Descartes*"), and nowhere else in his writings, does Spinoza discuss "geometric" demonstration: this is the *locus classicus* for the procedure of the *Ethics*. "Analytic" procedures are there distinguished from "synthetic" ones and both are geometric or mathematical as well as philosophic procedures Nevertheless, the synthetic is called "geometric," even in philosophy, because of the authoritative precedent of Euclid.[3] Of course these statements belong to the treasury of information well known to all Spinoza students. The import of the preface has been discounted because its ostensible author is not Spinoza but his disciple, Ludwig Meyer. Yet Spinoza asked Meyer to make alterations in the text of the preface; in the only book he ever published in his own name, he did not ask that the statements on method be modified.[4] Again, the "methodological" part of the preface has been regarded as essentially a borrowing from Descartes; but Spinoza indicates no disagreement therewith.

The analytic and not the geometric-synthetic method "shows the true wa

[*vera via*] in which a thing has been methodically discovered," according to the preface. Since Wolfson overlooked this assertion in his exposition, he was unable to see either the priority of the analytic or any significant difference between it and the geometric-synthetic method.[5] This assertion is not qualified or rejected by the preface: hence it is difficult to understand why Gueroult, who says the preface was "revue, corrigée et approuvée par Spinoza," nonetheless says that "la méthode synthétique . . . est entendue par Spinoza comme étant la véritable méthode d'invention."[6] Bidney made the decisive observation that "the geometric method . . . did not provide any proof or demonstration of the truth of its major premises, namely, the definitions, postulates, and axioms which are accepted as given."[7] The geometric-synthetic method cannot stand on its own feet, as an autonomous method of demonstration. Bidney never published, to our knowledge, the implications of this finding that he might have drawn for the *Ethics*. Only Strauss, among contemporaries, drew the conclusion that if synthetic demonstration cannot establish its premises, it must rely on a prior analytic procedure for their acquisition.[8] This prior analysis leading to the major premises of the geometric method of the *Ethics* must lie within the *Ethics* itself: we have no indications inside or outside the work that would point to another Spinozist publication that contains the analysis. This is less novel than it seems: some scholars have identified a discrepancy between Parts 1 and 2 of the *Ethics*, or have identified a second or new, discrepant beginning in *Ethics* 2, especially with the introduction of the "Physical Treatise" after P13.[9] Since the analytic is the *vera via* of discovery, it must necessarily begin by considering the phenomena as known prephilosophically as required by the methodological statements of the *Treatise*.

2. THE INSUFFICIENCY OF THE GEOMETRIC-SYNTHETIC METHOD

Before turning to the analytic method, we must first establish that the geometric-synthetic method of the *Ethics* cannot be regarded as self-sufficient.

(a) Arbitrariness of the Primary Definitions

If the geometric procedure is to be demonstrative, the primary definitions at the outset of the *Ethics* must be true. "A true idea must agree with that of which it is the idea" (E 1A6): the definition must be "real" and not merely nominal or stipulative. Since they are not accompanied by any justification,

the definitions must be self-evident or intuitively obvious. These requirements cannot be met by the primary definitions, nor does Spinoza's doctrine of definitions, as gathered from various writings, permit them to be met—as will appear in the sequel. Substance is defined (E 1D3) as "that which is in itself and conceived through itself." In its double requirement this definition has no clear and explicit antecedent, as Wolfson's elaborate survey only confirms.[10] Even if, by some miracle, it were the universal conclusion of the prior tradition, it would not thereby acquire self-evidence. While the definition of substance has plainly a Greek and especially Aristotelian ancestry, the definition of God has its sources in biblical theology. God is defined (D6) as "a Being absolutely infinite, that is to say, a substance consisting of infinite attributes, each one of which expresses eternal and infinite essence." The self-intelligibility of substance is in clear tension with the problematic intelligibility of God as substance with a double infinity: the Greek ancestry is at variance with the biblical. But in the *Ethics* only two of the divine attributes are adumbrated, extension and thought. Questions necessarily arise. Are only two of the divine attributes intelligible to the human mind? If so, what necessity underlies this conclusion? Is not the intelligibility of the two attributes of the divine whole impaired by the unintelligibility of those to which they must bear relations—the vastly greater remainder? Is not the whole fundamentally unintelligible? Can God be a substance, that is, self-conceivable, on these stipulations? On all these questions Spinoza preserves a resounding silence in the *Ethics*, a silence that inspires no confidence in the geometric method. It is not surprising that the arbitrariness of the primary definitions was ridiculed by Berkeley and rejected by Hegel. "The definitions from which Spinoza takes his start . . . *causa sui*, substance, attribute, mode, etc. . . . are solely and simply accepted and assumed, not deduced nor proved to be necessary."[11]

(b) The Indeterminacy of the Primary Definitions

If we consider Spinoza's treatment of definition in various places, it proves impossible to assign a determinate status to definitions within a geometric-synthetic method. Here our concern is with definitions only if connected with geometric method; and with method only if it involves definition. If a Spinozist statement asserts that definition is drawn from experience (for example, *historia naturae*), or in general requires proof, we shall conclude, in the absence of statements to the contrary, that such definitions cannot be the starting points of geometric demonstration.

In the *Ethics*, as said above, there is no discussion of the status of definition. The only passage on definition (E 1P8S2) argues only that a definition

does not involve or express any certain number of individuals. His silence about definitions would be merely part of Spinoza's imitation of Euclid and unproblematic were the subject matter of the *Ethics* exclusively or primarily mathematical. Hence this imitation is necessarily partial: whereas Euclid is silent about method and knowledge, Spinoza discusses *methodus* in the scholia to E 2P40 and there explains his classification of knowledge. In the first scholium, universals, and implicitly definitions, insofar as they involve genus and species, receive a certain critique. All the more striking then is it that in a work that begins *more geometrico* with primary definitions the sole thematic treatment of methodical knowing does not advocate or even once mention definition.

Instead of asking whether this omission is not itself deliberate and significant, it is customary to turn to the unpublished fragment *On the Correction of the Understanding* (henceforth "*Correction*"), in order to find a methodology that will explain the geometric procedure of the *Ethics*. But neither the doctrine we find in that work, nor the status that it is permissible to assign to that fragment, justify that function. The *Correction* assuredly treats of *methodus*, of the true method or the *recta inveniendi via*,[12] and is the only extant treatise as distinct from a private letter that offers what approaches a doctrine of definition. Yet it never speaks of geometric method, or geometric order of demonstration, nor does it distinguish geometric-synthetic method from analytic. Definitions in the true method do not initiate a demonstration, but themselves presuppose a prior inquiry. The truth or evidentiality of definitions arises from a preparatory articulation of the whole of being, which distinguishes between *res creata* and *res increata*.[13] This distinction is absent from the *Ethics* and alien to its doctrine. Nevertheless the *res increata* might seem to bear an affinity to certain subjects of the primary definitions of E 1, especially to substance and God. The second criterion of definitions of *res increata* is that they do not leave us in doubt about the existence of the things defined.[14] But if the definitions of substance and God in the *Ethics* were meant to conform to this doctrine of definition, the proofs of the existence of substance and God in E 1P7 and P11 would be redundant.

In the *Correction* Spinoza was groping for a methodology which combined the nonarbitrary evidentiality of beginnings, found in philosophical analysis, with the advantages of starting from known principles of the Whole, as in philosophical synthesis (see sections 4 and 5 below). The young Spinoza was so confident that the completion of this methodology and of the *Correction* treatise was within his grasp that he wrote "I have composed a whole treatise on this subject [the First Cause] and also on the correction of the understanding."[15] It is reasonable to assume, following Wolf,[16] that the "treatise" referred to is the *Short Treatise on God, Man, and His Well-Being*,

which remained unpublished by Spinoza, and that the rest of this statement refers to the *Correction*, which remained a fragment. On the statement quoted, the *Short Treatise* should presumably exemplify the method of the *Correction*, but it is not demonstrated *more geometrico*. From these facts it appears that Spinoza did not regard the *Correction* as teaching a geometric method, or even an adequately articulated method. Accordingly, the *Correction* cannot supply the methodological foundations for the geometric method of the *Ethics*. The doctrine, methodological and definitional, of the unpublished *Correction* is in clear discrepancy with that of the major published writings, *Descartes*, *Treatise*, and *Ethics*. Therefore, when Spinoza says in the *Ethics* (E 2P40S1), after some exposition of his *methodus*, that he has destined these subjects for treatment in another work, the reference is most probably to a replacement for the *Correction*—or to a substantially revised version thereof. A similar conclusion applies to Spinoza's statement to Tschirnhaus in 1675 that, as regards "motion" and "method," "my views on these subjects have not been put into final shape."[17] We conclude that Spinoza expected his readers to be guided sufficiently by the methodological doctrine of the published writings.[18]

In the *Treatise*, the four principal "methodological" passages never mention geometric-synthetic method in demonstration, but refer three times to *methodus* and once to definitions. In the first, we are required by *nostra methodus* to deduce and infer "the unknown from the known, insofar as it is known,"[19] but nothing permits the identification of the known with definitions. In the second, the definitions are acquired empirically. "The *methodus interpretandi naturae* consists chiefly in this, in composing a history of nature [*historia naturae*] and deducing therefrom definitions of natural things on certain fixed axioms."[20] In the third, the necessity of an empirical basis in *historia naturae* is essential in "philosophy"—we are not permitted to restrict it to some branch thereof which we would call "physics." "We have shown in Chap. VII that the meaning of Scripture should be gathered from its own history and not from the history of universal nature [*ex universali historia naturae*] which is the foundation of philosophy alone."[21] By the fourth, "we shall require a method [*methodus*] and order [*ordo*] similar to that which we use in interpreting nature from its history. . . . In the examination of natural things we try first of all to investigate what is universal and common to the whole of nature, as motion and rest, and their laws and rules, which nature always observes, and through which it continually acts and from these we gradually proceed to the less universal."[22] The presence of the prior *historia naturae* once more excludes identification of the method as geometric-synthetic. On the other hand, the mention of "motion and rest" suggests an identification with the procedure of *Ethics* 2, and es-

pecially with that of the physical treatise, whose first axiom concerns motion and rest (see section 5 below).

(c) The Restricted Range of Geometric Method

It is generally acknowledged that it is impossible in the *Ethics* to deduce geometrically any of the particular beings of the natural world, that is, the "finite modes." Hence even if we were able to assign a determinate status to the primary definitions on the basis of Spinozist statements, the geometric method cannot be the method of Spinoza's philosophy. As Barker observed, "The First Part [of the *Ethics*] may be said to work out a set of formal determinations applicable to reality as a single whole, without much concern as to what, in actual fact, reality consists of," that is, a multiplicity of finite modes. "Much of Part I becomes a mere formal exercise in the working out of the mutual relations of more or less arbitrary concepts."[23] But even the intelligible infinite attributes cannot be determined as extension and thought except on the basis of the finite modes which enter with experience. Hence even the determinacy of God's infinite attributes proves to lie outside the competence of geometric method.

Spinoza writes to De Vries: "We only need experience in the case of whatever cannot be deduced from the definition of a thing, as for instance, the existence of modes: for this cannot be deduced from the definition of a thing."[24] In accord with this assertion, Spinoza introduces near the outset of E 2 the axiom: "We neither sense nor perceive particular things except bodies and modes of thought." With this A5 belongs A2 ("Man thinks") and A4 ("We sense [*sentimus*] that a certain body is affected in many ways"). Only on this experienced basis of particulars, at the inception of *Ethics* 2, do we acquire knowledge that there are existent modes, and what their determinate properties are. But they are called "axioms": do they not fall within the geometric method? But in clear contradistinction to the axioms that follow the primary definitions of E 1, these axioms assert the existence of particular finite beings with determinate properties, and do so on the basis of internal and external sensation and feeling. The axioms of E 1 remain "geometrical" insofar as they are not based on experience, as these from E 2 are. These put a term to one methodological procedure in the *Ethics*, and, as will be shown, inaugurate another.

Already in E 1 we learn that what is finite cannot be deduced from the infinite. "That which is finite, and has a determinate existence cannot be produced by the absolute nature of any attribute of God" (E 1P28). Nor can the finite be deduced from the infinite modes, as the context of E 1P28 shows. A finite mode "must be determined by another, which is finite and has a determinate

existence." Whereas God is only a *causa immanens* and not a transitive cause (E 1P16), the finite modes, for example, bodies, clearly have transitive causal relationships. The realm of finite modes is independent of the divine attributes and infinite modes, as regards the particular determinacy, or "production," of its members. Precisely because the geometric method begins with definitions of infinite being it reveals itself as not competent to account for the determinacy of finite being.

This conclusion appears indeed to be controverted by the assertion that "modes of the divine nature follow therefrom necessarily and not contingently" (E 1P29Dm). Moreover, "God is not only the efficient cause of the existence of things, but also of their essence" (E 1P25). But the purport of these assertions does not bring them into contradiction with E 1P28, on which we have primarily relied above. A body, that is, a finite mode, determines another body, by transitive causality, because of the necessary condition that each is extended, but extension is an infinite attribute of God, hence the immanent cause of the finite determination. When extension, taken as infinite attribute, is "modified," it becomes the extension of a body that can determine another body. But from the infinite attribute of extension, no modifications can be deduced (E 1P28). Spinoza does not tell us why there should be any modes. Hence that there are modes as distinct from substances, or from the one substance, is merely an empty, unsupported assertion, so long as we adhere to the deduction of the geometric method. Of course, if we understand primary definition 5 (of "mode") as a self-evidently true definition that entails the existence of its referent, then we shall indeed hold that there exist some modes of substance. But even if this be granted this procedure is empty, since we shall still not know what any particular mode is—that is, what a modification of substance might mean in actuality—until we leave the geometric method behind us.

The barrenness of the geometric method is still more acute. It cannot even deduce what God is in the determinate sense: that his infinite attributes include extension and thought. Only on the basis of our experience of the existence and nature of finite modes does Spinoza, in E 2P1 and P2, infer that God is extension and thought. There he reasons that since "particular thoughts . . . are modes" and God must possess the attribute thus modified, thought is an attribute of God; and by a similar argument from finite to infinite, God is extended. But, as seen before, only the experiential axioms E 2A2 and A4 introduce into the exposition the existence of particular thoughts and bodies. It is worth noting that the demonstrations that God is a thinking and extended thing (E 2P1, P2) have a small but significant defect: they do not mention the experiential axioms (A2, A4) on which they depend, but instead offer justification only from E 1. This is not the only indication that Spinoza seeks to blur the "modal boundary" which delimits the synthetic method.

This "blurring" shows up in the fact that Spinoza already in Part 1 asserts as established the twin theses, God is extended and thinking, long before the propositions that assert them and the demonstrations that justify them are introduced in Part 2. Spinoza first says, without justification (E 1P14C2), and somewhat tentatively, that "extension and thought are either attributes of God or modes of the attributes of God." But in the following proposition (E 1P15S) he says that in P14 he had already "concluded that extended substance is one of the attributes of God." This could be regarded as an egregious blunder, except that Spinoza calls our attention to his blunder, by compounding it with another: he says that substance is an attribute, in clear discord with the primary definitions of the synthetic system. Moreover, if Spinoza thought he had established in E 1P14 that God is extended, he would not have offered the proof of that thesis in E 2P2. Hence it is a reasonable inference that Spinoza's claim to have concluded that God is extended in E 1P14 is a pretence of which he is fully aware. A similar argument could be made about the theses that God is a thinking being and an intellect, which are asserted in Part 1 but again without justification. We can therefore agree that for these and similar reasons, "as an apodictic system, *de Deo* [Part 1] is patently ill-formed."[25] This malformation is hardly the fruit of Spinoza's exaggerated confidence in "geometric" deduction; it has a well-deliberated structure. On the one hand, he blurs the modal boundary by his "geometric" deduction of conclusions of which [the geometric method] is incapable. On the other, by the inconsequence of certain conclusions, whose visible basis is clearly experience, he calls our attention to that very same boundary.

3. ANALYTIC AND SYNTHETIC METHOD IN THE *DESCARTES*

To understand why Spinoza chose the geometric order of demonstration in the *Ethics* we must understand why he chose it in his first publication, the *Descartes* (1663). It is reasonable to suppose that he expected readers to study the *Descartes* for this purpose: nowhere but here does he justify or even discuss the geometric method. In the *Descartes* Spinoza utilizes the geometric method to demonstrate what is in fundamental respects for him a false doctrine. The preface identifies several false Cartesian doctrines, for example, the "statements about will . . . even though they seem to be satisfactorily proved with great care and completeness." "The foundations of knowledge laid by Descartes and the things erected upon them do not suffice."[26] We can then conclude that the geometric demonstration of Descartes's principles is a pseudodemonstration, a fact to which Spinoza

even invites the reader's attention. The geometric method then is neutral to the truth of the doctrine conveyed, or it is peculiarly suited for the communication of false doctrines, or both.

The preface begins by identifying "the method of the mathematicians" with the geometric method of "demonstrating conclusions from definitions, postulates, and axioms." This is "the best and surest means of searching out and teaching the truth." All the more striking is it that when Descartes is introduced—"that splendid light of our age"—we learn that he did not employ the geometric method "used in the *Elements* of Euclid and in other Geometries." In his "philosophic writings" he preferred the analytic method, "which shows the true way in which a thing has been methodically discovered, even, as it were, a priori." Both this statement and the following description of synthetic method are quoted in the preface from Descartes's 2nd *Replies*, accompanying the *Meditations*. Synthetic method "uses a long series of definitions, assumptions, axioms, theories and problems, so that if anything in the consequences is denied, it is at once shown to be contained in the premises, and so extorts the assent of the most contrary and obstinate reader." The synthetic—plainly the "geometric"—method demonstrates only what is "contained in the premises," but not the premises themselves. If geometric demonstration is formally correct, the doctrine demonstrated may be true or false depending on the status of the premises. Only analysis as the *vera via* of discovery can establish the status of premises. Hence for Descartes "the true and best way of teaching" is the analytic.

For Descartes the geometric method "extorts the assent of the most contrary and obstinate reader," whereas only the analytic method contents "the eager learner" because it "shows the way in which the matter taught was discovered" (2nd *Replies*).[27] More precisely, the analytic method is addressed to the philosophic reader, the geometric-synthetic to the nonphilosophic, as we learn from correlation with a distinction in the preface to the *Meditations*. "In geometry, since each one is persuaded that nothing is advanced of which there is not a certain demonstration, those who are not entirely adept more frequently err in approving what is false, in order to give the impression that they understand it, than in refuting the true." But "in philosophy" everyone believes that all is problematical, and "few give themselves to the search after truth."[28] The geometric method is not addressed to the philosophic reader because it is not suited to philosophy as distinct from geometry. "The presuppositions of geometric proofs harmonize with the use of our senses, and are readily granted by all . . . on the contrary, nothing in metaphysics causes more trouble than the making the perception of its primary notions clear and distinct" (2nd *Replies*).[29] Accordingly, the geometric demonstration of his metaphysics which Descartes appended to the 2nd *Replies*, even if a formally

correct deduction, cannot have been intended by him as a genuine demonstration.

Why did Spinoza reject the analytic method used by Descartes in his philosophic writings in favor of the geometric-synthetic? The preface [to the *Descartes*], which scarcely addresses this question explicitly, suggests at first that the initiative lay with Ludwig Meyer. Meyer observes that most people are inexperienced in analytic and synthetic method, and many "have assumed the name Cartesian though unable to demonstrate anything." He hoped that "someone skilled in both analytic and synthetic order" would demonstrate Descartes's principles in geometric order; he learned that Spinoza had stated Part 2 of Descartes's *Principles* (the physics) geometrically; and he persuaded him to add a geometric version of Part 1. This explanation gives no reason for the choice of the geometric: presumably the *vera via* of discovery, the analytic, would have been more appropriate. Moreover, Meyer's distress at the dogmatizing of the Cartesians, even if it was shared by Spinoza, does not explain why the latter composed and published an essentially dogmatic, that is, geometric version of Cartesianism, which suppressed the analytical proof of its premises. Nothing could be less faithful to the spirit of Descartes than to demonstrate the Cartesian metaphysics by a method Descartes declared inappropriate to metaphysics, and which he employed in the 2nd *Replies* only ad hominem—at the insistence of the authors of the 2nd *Objections*.

Light on the enigma begins to appear from the fact Meyer gives us that the initiative in applying the geometric method to Descartes originally lay with Spinoza. For one of his pupils he had demonstrated geometrically the Cartesian physics—Part 2 entire of the *Principles* and a portion of 3. To Spinoza this is the least problematic part of Descartes's doctrine: the preface indicates several Spinozist objections to his metaphysics, but none to his physics. But Spinoza had no intention of producing more competent Cartesians. To the same pupil he demonstrated geometrically "some important and rather difficult questions aired in metaphysics and not yet resolved by Descartes." At some point the promising pupil learned, as Spinoza's pupil Meyer learned, that one must know the analytic method of discovery as well as geometric-synthetic demonstration. But the analytic method cannot, for Spinoza, establish the premises of a Cartesian metaphysics that is erroneous; it must lead to the premises of Spinozist philosophy. The apprenticeship to the true philosophy is study of the geometric demonstration of Descartes's principles. The apprentice will remain a dogmatic Cartesian if he does not break the fetters of geometric demonstration and practice analysis. By identifying the false Cartesian doctrines "demonstrated" ("proved with great care and completeness") geometrically and by identifying analysis as the true way of discovery, Spinoza provokes the reflective reader to turn to analysis and philosophy. Just

as unmistakably as Descartes, Spinoza presupposes two kinds of readers, a dogmatic nonphilosopher and a competent "eager learner." Only on this assumption can we grasp why he "demonstrated" the erroneous philosophy of Descartes, while declaring, in the final paragraph of the preface, that he publishes for no other purpose than "to urge men to the study of true and sincere philosophy."

4. PHILOSOPHIC SPEECH

The notions of philosophic communication implied in the foregoing are found partly in the precepts of the *Correction* and partly in the *Treatise*. Spinoza sets down three "rules of living" for philosophers in the *Correction*, which begin as follows: "To speak with a view to the capacity of the vulgar [*ad captum vulgi*] and to practice all those things which cannot hinder us from reaching our goal [that is, the highest good]. For we are able to obtain no small advantages from the vulgar provided we make as many concessions as possible to their capacity. Add to this that in this way they will lend friendly ears to the truth."[30] To accommodate philosophic speech to the capacity of the vulgar is, at least at certain times, an action not antithetical to but requisite to the quest for wisdom. Spinoza's first rule is modeled on the first rule of Descartes's *morale par provision*.[31] While pursuing the strictly private examination of his own opinions, the Cartesian philosopher practices intransigent conformism to the opinions and practices of those among whom he will live, even though these be "Persians or Chinese." In the *Treatise* Spinoza teaches that God and the prophets Jesus and Paul, in speaking *ad captum vulgi* or *ad captum alicuius*, that is, to men who held vulgar opinions, accommodated themselves to the capacity of their addressees by professing or at any rate not questioning those opinions.[32]

Four kinds of possible readers are identified at the end of the preface to the *Treatise*: (1) the "philosophic reader," identified as the primary addressee; (2) the philosophers, who do not require Spinoza's instruction; (3) the "vulgar," in whom "prejudices embraced under the name of religion" or of "superstition" are deeply rooted; and (4) those afflicted by the same passions as the vulgar. Category (4) refers to theologians: neither they nor the vulgar will benefit from a book whose purpose is to deny that "reason ought to be a handmaiden to theology." Nevertheless they can and may be expected to read the book: as shocking as the *Treatise* is to their opinions, it nonetheless accommodates itself to those opinions. More pertinent, even the philosophic reader is not, or not yet, a philosopher, but one who shares the vulgar opinions: he must be addressed on the grounds of those opinions. Thus, Spinoza's first

sentence in chapter 1 is an *ad captum* utterance which is often later contradicted: "Prophecy or revelation is certain knowledge of some thing revealed by God to man."

As Spinoza indicates through his examples of *ad captum* speech in the Bible, the assertions of a speaker do not necessarily reflect the settled beliefs of the speaker: "Moses believed, or at least he wished to teach. . . ."[33] Spinoza stresses that what God and certain prophets say to certain prophets or men contradicts what is said on other occasions to others, because it is accommodated *ad captum vulgi* or *ad captum alicuius.* At least some statements of the speakers must then be in deliberate or conscious contradiction with others, as well as with [the speakers'] own knowledge or settled beliefs. Since Spinoza forcibly draws attention to this type of contradiction in the Bible, the reader, if a philosophic reader, is forced to ask if the many and various contradictions in Spinoza's own statements are not themselves conscious or deliberate. Moreover, the ambiguity whether the Bible had one primary author or two or more authors is absent in Spinoza's work: could not all the difficulties of the *Treatise* be part of a single, controlling intention? Spinoza's interpretation of the Bible educates the reader to discern not merely the variety of forms of direct and indirect contradiction in that writing and his own but also the disjunction in levels of discourse. Only rarely are these levels placed in immediate proximity, as at the end of chapter 15. "As we cannot perceive by the natural light of reason that simple obedience is the path of salvation, and are taught by revelation only that it is so by the special grace of God, which our reason cannot attain, it follows that the Bible has brought a very great consolation to mortals." The passage continues: "All are able to obey, whereas there are but very few, compared with the aggregate of humanity, who can acquire the habit of virtue under the unaided guidance of reason." The philosophic few are compelled to suspect the ultimate seriousness of any Spinozist assertion or inquiry that is not guided by the natural light of reason.

In the *Ethics* the surface contradiction lies between the geometric form of exposition and the abandonment of that form, especially in Part 2. It might be expected, on the basis of the *Descartes*, that Spinoza would clearly indicate in the *Ethics* that beginning of the analytic method which establishes the premises of the geometric. Instead he blurs in various ways, as said above, the limitation of the geometric and the introduction of a new method in Part 2. In our consideration of the analytic we shall find (just as in the *Descartes*) that he has no intention of removing the arbitrariness of geometric demonstration: the methods will be disjunctive in procedure and doctrine. This conclusion has already been implied: the recommended philosophic method of the *Treatise* is in contradiction with the ostensible geometric method of the *Ethics*.

The same philosophic reader, to whom we must assume both works are addressed, is a child of both the religious and philosophic traditions. The dogmatic beginning with biblical revelation in the *Treatise* must be complemented by the dogmatic beginning with substance metaphysics in the primary definitions of the *Ethics*.

5. ANALYTIC METHOD AND KINDS OF KNOWLEDGE IN *ETHICS* 2

Cartesian analysis is the immediate parent of Spinozist analysis, as the *Descartes* shows. Tonelli has given general definitions of descriptive statements of analysis and synthesis in the tradition before the eighteenth century.[34] To simplify somewhat, analysis is that procedure which begins from the sensible, seeks the causes or principles of the sensible understood as "effects," and culminates in elementary notions or first principles. Since synthesis proceeds in the opposite direction, or begins with those elementary notions and first principles, we can infer that it presupposes the analytic. Tonelli thus confirms analysis as the true way of discovery. Nevertheless, there is a grand dogma that Descartes is the founder of continental rationalism which excogitates its principles a priori, or exclusively by intuition and deduction, apart from experience. Tonelli's description of analysis seems not to fit Descartes, or even the empiricists who sought first principles not of the beings but of human knowledge or of the human mind. What must be preserved, however, from Tonelli is that the moderns shared with the ancient tradition the assumption that philosophy must begin with a nonarbitrary reflection on experience, that is, with analysis. It is by analysis guided by experience of bodies that Descartes elicits extension as the intelligible in the piece of wax in *Meditations* 2 and the simple, prior, or absolute in the "questions" of *Regulae* 5 and 6, which are saturated with experiential elements.

However, a prior and more fundamental reflection leads Descartes to the abandonment of the experienced articulation of the world into a heterogeneity of kinds or classes of things—men, animals, plants, inanimate beings, the manmade and the nonmanmade. In this sense he turns his back on experience just as surely as any other modern physicist. He replaces the heterogeneity of kinds of things with the homogeneity of bodies, guided by, or justified by, the decision that science is exclusively "clear and distinct" cognition. Nonetheless, the clear and distinct is that which manifests itself immediately in the experience of bodies: what can be known only by an *inspectio mentis* in the piece of wax is the same extension that can be touched.[35] The Cartesian departure from the experience of heterogeneous kinds is compensated by the

universal immediacy by which concepts are manifested in the experience of bodies; the abiding difficulty of this procedure is the return to the explanation of heterogeneous kinds. It is a question whether Descartes did not pay a heavy price for this immediacy: extension is not a true ultimate, or not that metaphysical essence of body that can account for the properties even of homogeneous bodies. Descartes did not seek to determine the ultimate divisibility of extension, or those ultimate parts that could explain the resistance, impenetrability or *antitypia*, required of his laws of mechanics. He was content to postulate three grades of fineness of material parts. It is probable that this lack of metaphysical ultimacy did not distress Descartes: extension, figure, and motion could be identified with the conceptual objects of his analytic geometry. In these respects Spinoza is his disciple.

Spinoza's analytic procedure similarly begins negatively, in the first scholium following E 2P40, the only place in his work where he speaks of "this method of ours." His thematic critique of imagination shows us that he is examining what is called (second scholium) "the first kind of knowledge," *opinio vel imaginatio*, by which men inhabit the "common order of nature" (P29). But the *Treatise* had investigated opinion and prejudice, and it is especially through speech that we remember and imagine things: the *Treatise* is the beginning of the analysis of the *Ethics*. In the first scholium, Spinoza instances transcendentals and then universals as reflecting the inadequacy of imagination, but the critique bears directly only on the universals. Spinoza seems to imply that if one begins with universals, or with things and attributes, one is led to abstractions such as Being (*ens*) which he at least once equates with *substantia*,[36] with which the geometric demonstration of the *Ethics* begins. The tradition had formed universals from the imagined, and apparently common, attributes of the kinds, and had abstracted ever "higher" or more general terms. In common with Descartes Spinoza begins with bodily wholes and parts instead of the heterogeneous kinds. But as against Descartes, he refuses the fundamental heterogeneity of *res cogitans* and *res extensa*: man is not in nature as a "kingdom within a kingdom": in this respect Descartes is the last ancient philosopher.

The physical treatise following P13 begins with an axiom: "All bodies are either in a state of motion or rest." This beginning is the bond between experience and science. What would be acknowledged by any man in "the common order of nature" is simultaneously the first axiom of Spinoza's physics. It lacks any supporting geometric deduction; it has been prepared by the pseudogeometric axiomatization of sense experience that premises the existence of bodies at the outset of E 2. Axiom 1 presupposes the meaning of "a body"; the subsequent definition of "a body or individual" presupposes the meaning of motion: there is no unilateral deduction in either direction. More

precisely, the definition of a body or individual presupposes the "law of inertia" and two other principles of motion given previously in three lemmata. Stated differently, the definition of a body or individual is the only definition in the physical treatise, but since motion is not defined even this definition is elliptical. The analytic procedure then scarcely relies on definitions, for example, of essences, and to the extent that it uses them they are not a priori but experientially derived. While Spinoza's *unum corpus sive individuum* is a compound of "simplest bodies" (*corpora simplicissima*), it is not defined in terms of them. We are not told whether the simplest bodies are indivisible atoms or infinitesimally small particles or what they are. Scholarship has speculated that they may be corpuscles of aetherial fluid or oscillating pendula.[37] It suffices for Spinoza's science of nature that we assume that the parts of extension must possess the same hardness, impenetrability, and so on, as that of experienced bodies. Ultimate definitions may or may not be possible, but they are not necessary. Even the ultimacy of extension found in Descartes is lacking; the very word *extensio* is literally absent from the physical treatise; it is alluded to, certainly, though not employed, in lemma 2, apparently to link up the analysis with the divine attribute in the geometric synthesis. But whereas the geometric exposition stresses the extension of materiality of God as one of his two intelligible attributes, the analysis treats extension as posterior to motion and rest.

To be *unum corpus sive individuum* the definition requires, first, that the parts of a compound be pressed together by external bodies so that they lie one upon another, and, second, that the parts communicate their motion to one another by "a certain fixed ratio" (*certa quadam ratione*). The first condition by itself may suffice to designate what would customarily be called an inanimate body; and the following axiom appears to have the same reference, a body that has *figura* alone. However, both conditions apply to the compounds of lemmata 4–7, which preserve their *natura* or *forma* despite their ("metabolic") interchange of bodies with adjacent individuals, thanks to conservation of their *ratio*. The fact of having some *ratio* is deducible from prior axioms and laws of nature; only experience tells Spinoza that some bodies have an abiding identity, that is, preserve the same *ratio*. Experience also both permits and justifies Spinoza's version of "metabolic" interchange, as well as constitutive features of the human body, the only distinctive kind of body that is explicitly acknowledged. But it is obvious that a "certain fixed ratio" in its fixity cannot accommodate the facts of growth and decline, and not even diurnal bodily change. Only much later in the *Ethics* does Spinoza speak of the change from childhood to maturity as a change of ratio, and hence as a change of identity: he does not hesitate to call this "death." Even the famous amnesia of the Spanish poet is called death.[38] Spinoza has no concern with articu-

lating the degrees or kinds of ratio change that would permit him to describe the continuity of living bodies through change, whether of maturation or amnesia. He suggests that the wise man can alter or modify the relations of imagination and memory to reason so that a change results to the ratio underlying happiness and blessedness.[39] Because the parts of living bodies are not, for example, organs, but rather the bodies known to the physicist, Spinoza's doctrine is an "ethics" and not a possible "philosophy of organism." The ratio which in physical terms would be a hypothesis, "in principle" calculable but never practically calculable, is translated onto the practical plane of self-therapy in the experience of the wise man.

Similar considerations underlie the treatment of the mind-body relation. By P13 "the object of the idea constituting the human mind is a body, or a certain mode of extension actually existing, and nothing else." In terms of geometric metaphysics, a modification of the attribute of thought is here conceived by means of a modification of the attribute extension. As has been noticed by others, this does not conform to the requirements of the substance doctrine. "Each attribute of a substance must be conceived through itself" (E 1P10). In general, Spinoza appears to be governed by his explanation of primary definition 2: "a body is not limited by a thought, nor a thought by a body." Nevertheless, P13 asserts a relation of mind to body: what then is "limitation"? The relation of mind to body in P13 could be regarded as merely one of awareness: limitation in the sense of causal determination may then be denied, and this denial is supported by many passages. To be sure, Spinoza appears to waver between a view which regards ideas or acts of mind [as] sufficiently determined by antecedent acts of mind—finite modes by finite modes; and another view which regards bodily states, and even external impacting bodies, as causal sources of mind's ideas.[40] The latter view is strengthened by the recourse to experience when Spinoza considers action and passion in Part 3. For example, "experience teaches" "that if the body be sluggish the mind at the same time is not fit for thinking."[41] The inverse causal sequence, though rare, is also found. When we groundlessly fear an evil, the fear vanishes when we have correct intelligence (E 5P67). (Fear involves the body's *potentia agendi*.) In sum, Spinoza remains entirely faithful to primary definition 2 in one sense: no adequate knowledge of such mind-body causal sequences is claimed. Just as clearly "experience teaches"—or "nature teaches" as Descartes said in a similar context[42]—that such causal sequences occur. "There is no need to know the nature of the mind through its first cause" (Ep. 37).[43]

Spinoza's celebrated doctrine of the three kinds of knowledge (2P40S2) does not refer to definitions or geometric method or order, as said before. As for the first kind of knowledge, *opinio vel imaginatio*, it has now been more

securely placed in the analytic procedure. "Reason and knowledge of the second kind" arises "from common notions and adequate ideas of the properties of things (P38C, P39C, P49)." Spinoza's cited propositions refer us back exclusively to adequate knowledge of bodies, and what can be deduced therefrom, that is, knowledge derived analytically. The corollaries of P38 and P39 both refer to what is common to all bodies, but the enunciations of P38 and P39 which speak of *omnibus communia* appear to have a wider reference than "all bodies."

To elicit the underlying problem, we note that by P38 "that which is common to all things and which is equally in the part and in the whole can only be adequately perceived." The whole in question cannot be limited to finite wholes. "If we advance *ad infinitum*, we may easily conceive the whole of nature to be one individual [*individuum*] whose parts, that is to say, all bodies, differ in infinite ways without any change of the whole individual" (L7S). The common will be univocally present in the part and in the totality, the whole of nature. Thus the intelligible in Spinoza's analytic method does not alter, gain or lose, in being or intelligibility by any "ascent" or "descent" from part to whole or whole to part, as in the premodern analytic and synthetic procedures. This is the "scientific" core of Spinoza's analytic *vera via.*

This whole-part univocity is sacrificed when Spinoza in P45 and 46 purports to show that "adequate" knowledge is also exemplified by geometric deduction. If the whole-part univocals of P38 were to be instantiated through the geometric metaphysics they would have to be "equally present" in God and finite modes or particular things. But this would impair the distinction of attribute and mode: they would have to be equally present in eternal and temporal being, in substance which is *in se* and in modes which are *in alio* (E 1D3, 5), as modifications thereof. Accordingly, in P45 and 46 Spinoza reduces the range of univocity to what is common to the part and whole of merely finite wholes: the common in that reduced sense may be deduced from "the eternal and infinite essence of God." This reduction makes intelligible his exclusion of geometric deduction from the range of, or examples of, adequate knowing in P39–P40S2.

Spinoza's third kind of knowledge, *scientia intuitiva*, "advances from an adequate idea of the *essentia formalis* of certain attributes of God to the adequate knowledge of the essence of things." The notable example given should awaken caution: finding the fourth proportional to three given numbers does not disclose the essence of any particular thing. The geometric metaphysics is incapable of deducing any determinate quantities; it remains a qualitative or attributal metaphysics of traditional type; numerical ratios and proportions had entered only with the analytic account of the corporeal individual, and even there are not actually calculable. On the other hand, if we free "ratio"

from a strict numerical meaning, the description given of *scientia intuitiva* remains in strong discord with E 1P28: it is impossible to deduce the finite from the infinite. In the light of these considerations, it is not surprising that Spinoza gives a peculiarly lame proof that geometric method can attain *scientia intuitiva*, in the scholium, as distinct from the demonstration, of P47. The proof begins with God's essence, appropriately enough, but does not even mention "the essence of things," the required concluding term of the deduction. In fact only in P7 of Part 3 does Spinoza introduce *conatus* as "the actual essence of the thing itself." It is generally agreed that *scientia intuitiva* terminates in knowledge of particular things (*res singulares*, E 2P36). Even were we to disagree with Bidney and others that the *conatus* of things is their inertial force or power[44]—and hence the product of analytic knowing—it would still remain that, on the geometric procedure, one could not deduce the *conatus* of this or that thing.

In Spinoza's *Ethics* the Whole which is expounded by the geometric method is at strong variance with the Whole discovered by the analytic procedure. The first Whole is a substance with attributes, the other a Whole that is a compound of parts. The one substance is indivisible and lacks parts (E 1P12, P13) and is constituted by its attributes; the other is a compound whole which is constituted by its component parts or individuals (E 2L7S). In the Whole as substance, attribute is prior to mode in being; as a modification of an attribute, a mode has its being *in alio*. But in the Whole as a compound of parts, the part, or the constant ratio which constitutes it, is not derivative from, or a modification of, that Whole. And the individual part or thing, so far from being *in alio*, strives to persevere *in suo esse* (3P7). As regards the Whole as substance, an attribute is not the sum or totality of its modes or modifications: the mode is not a part. But the Whole as compound individual is the totality of its parts, which are not derivative from the Whole: the part is not a mode. The geometric and analytic models of the Whole are disjunctive.

6

The problem of Spinoza's pantheism is located in the double name that designates the one identical Whole, *Deus sive natura*. The duality and the unity of this Whole receive their most authoritative articulation in the *Ethics* in the exposition of *natura naturans* and *natura naturata* (E 1P29S). Both together are "nature"; taken together they comprise and exhaust the Whole. But both together are also God: from God as *natura naturans*, or a substance whose attributes express his eternal and finite essence, there follows God as *natura naturata*, or all the modes of God's attributes insofar as they are considered

as things which are in God. Thus the one Whole may be designated indifferently *Deus sive natura.* At the same time, it may be observed that the distinction permits a certain harmonization between theism and pantheism: it may be construed as designed to distinguish between God and the beings that make up the world. It is not accidental that Spinoza uses a distinction employed for that purpose by Thomas Aquinas, and attributed it to him in the *Short Treatise*.[45] That Spinoza intends such a harmonization is confirmed by the theist attributes imputed to God in Part 1—omnipotence, omniscience, perfection—and his occasional use of the language of creation. His consideration of the divine nature is especially revealing of his procedure. Since "neither intellect nor will appertains to God's nature," it is necessary that "we take these words in some significations quite different from those they usually bear" (E 1P17S). We need not enter into the details of Spinoza's identification of the divine will and intellect in order to see that his assertions that both will and intellect pertain to the essence of God and that the modes or *natura naturata* "follow" from that essence easily permit a theist construction.

The question now arises, however, whether this harmonization with theism leaves unimpaired the possibility of uniting God and the world, *natura naturans* and *natura naturata*, and hence *Deus* with *natura*, as pantheism requires. But precisely the derivation from the divine essence to the finite modes, as a cognitive procedure available to the human mind through geometric deduction, has been excluded, especially by E 1P28, as shown previously. Moreover, it must be noted that the modes of *natura naturata* are "in God," in accordance with biblical statement (Acts 17:28), but they are not said to be parts of God. God's modes are not parts—he is, as brought out before, indivisible and without parts: whereas nature as the one compound whole has parts which are not modes, since not derivable from the divine essence. For the very reason that it is an accommodation to theism, the distinction of *natura naturans* and *natura naturata*, when carefully regarded, does not permit *Deus* and *natura* to designate the same whole, either in their being or in their being known.

To add one last clarification, according to Spinoza's "pantheist" statements, what follows from God's essence is complete or perfect. "The omnipotence of God has been actual from eternity" (E 1P17S). "Things have been brought into being by God in the highest perfection" (E 1P38S2). Spinoza considers an objection to this conclusion at the end of the appendix to E 1. Why did God not create all men in such a manner that they might be controlled by the dictates of reason alone? He first replies "because to him material was not wanting for the creation of everything, from the highest down to the very lowest grade of perfection." This answer leaves it uncertain whether or not God has in fact brought into being all the grades of perfection, even

among human beings. Spinoza's second reply, immediately following, drops "creation" as well as the notion of a completed *scala naturae*. "To speak more properly, because the laws of his nature were so ample that they sufficed for the production of everything which can be conceived by an infinite intellect." But what is conceivable in principle to an infinite intellect is not now necessarily actual in fact. Despite the earlier assertion of the eternal actuality of omnipotence, we are left with the suggestion that the Whole is not yet complete or perfect, or is a process of progressive development.[46] However this may be, since "the laws of his nature," if taken to mean the infinite essence of God, cannot produce any finite things, nor any laws of nature determining the production of finite things, as seen above, it is entirely reasonable that Spinoza replace God's laws by "nature's laws" in the analogous passage in the preface to *Ethics* 3. "Nature's laws and rules whereby all things are and are changed from one form into others are everywhere and always the same." When [Spinoza spoke] of God's laws in the appendix just quoted no "forms" were mentioned; forms are a function of the laws of nature introduced in the physical treatise. The forms do not abide; things, it is reasonable to surmise, take on all the forms that could be conceived by "an infinite intelligence." We are reminded of Descartes's view that "these laws [are] the cause that matter must take necessarily all the forms of which it is capable" (*Principles* 3.47). To maintain such a Cartesian view, according to Leibniz, who also relates it to Spinoza, "il faudroit supposer, que le même état de l'Univers revient toujours précisément après quelque période."[47] Nature is either unilinear development or eternal return of the same.

NOTES

"Analytic and Synthetic Methods in Spinoza's *Ethics*," *The Philosophy of Baruch Spinoza*, ed. Richard Kennington, Studies in Philosophy and the History of Philosophy, vol. 7 (Washington, DC: The Catholic University of America Press, 1980), 293–318. Reprinted with kind permission from The Catholic University of America Press.

1. *A Theologico-Political Treatise*, in *Works of Benedict de Spinoza*, trans. R. H. M. Elwes, 2 vols. (New York: Dover, 1951), 1:195, 99, 104, 113; *Opera*, ed. C. Gebhardt, 5 vols. (Heidelberg: Carl Winter, 1925), 3:185, 98, 102, 112. Modifications are sometimes made in this translation of the *Tractatus* and also in the White-Stirling translation of the *Ethica* and the Elwes translation of the *Tractatus de Intellectus Emendatione*, published together in the edition of J. Gutmann (New York: Hafner, 1955).

2. "[Spinoza] was accustom'd to this way of pretending to demonstrate things in a Geometrical Method, tho he knew 'em to be false, since thus he had before demon-

strated Cartesius's Principles," John Toland, Letter 4, *Letters to Serena* (1704) (reprinted, New York and London: Garland, 1976), 153. "Spinoza a donné à ses imaginations une apparence de grands principes de métaphysique, et il a affecté la méthode des géomètres, pour donner à son ouvrage un tour d'exactitude et de demonstration," F. de Salignac de La Mothe-Fénelon, *Correspondance de Fénelon*, ed. J. Orcibal (Paris: 1976), 95. "Quoi qu'il ait disposé en ordre Mathématique ce qu'il dit, pour surprendre les Lecteurs; on voit partout de faux raisonnements et un Galimathias perpétuel," J. Le Clerc, *Bibliothèque ancienne et moderne* vol. 22 (1724), quoted in F. Mauthner, *Der Atheismus und seine Geschichte im Abendlande*, 4 vols. (Hildesheim: Georg Olms, 1963), 2:350.

3. *Principles of the Philosophy of René Descartes, Demonstrated in the Geometrical Manner*, in B. Spinoza, *Earlier Philosophical Writings*, trans. Frank A. Hayes (Indianapolis, IN: Bobbs-Merrill, 1963), 3–5.

4. See Ep. 15 to L. Meyer, *The Correspondence of Spinoza*, ed. A. Wolf (London: Frank Cass, 1966), 134–36; Gebhardt 4:72–73.

5. H. A. Wolfson, *The Philosophy of Spinoza* (Cleveland, OH: World, 1958), chapter 2, "The Geometrical Method." Accordingly, the fact that "Descartes' philosophy . . . was discovered by the analytic method" (1.56), is without methodological significance; whether the order of proof is analytic or synthetic is a matter of indifference. It is therefore possible for Wolfson to say that it is "a literary pretension that [Spinoza's] entire philosophy was evolved from his conception of God"; but that "the eternal existence of God . . . is immediately known as an intuition"; and also that "'God' is merely an appeasive term for the most comprehensive principle of the universe" (2.4: 1.375; 1.177).

6. M. Gueroult, *Spinoza*, 2 vols. (Paris: Aubier-Montaigne, 1968–1974), 1:20, 35.

7. D. Bidney, introduction, in Hayes, xiv.

8. L. Strauss, "How to Study Spinoza's *Theologico-Political Treatise*," in *Persecution and the Art of Writing* (Glencoe, IL: Free Press, 1952), 186–87, 189.

9. H. Barker, "Notes on the Second Part of Spinoza's *Ethics*," in *Studies in Spinoza: Critical and Interpretive Essays*, ed. S. Kashap (Berkeley: University of California Press, 1972), 101–5; A. E. Taylor, "Some Incoherencies in Spinozism," in Kashap, 200; D. Lachterman, "The Physics of Spinoza's *Ethics*," in *Spinoza: New Perspectives*, ed. R. Shahan and J. Biro (Norman: University of Oklahoma Press, 1978), 83.

10. Wolfson, 1.64, 66.

11. "I have heard, said I, Spinoza represented as a man of close argument and demonstration . . . He did, replied Crito, demonstrate; but it was after such a manner as any one may demonstrate anything. Allow a man the privilege to make his own definitions of common words, and it will be no hard matter for him to infer conclusions which in one sense shall be true and in another false, at once seeming paradoxes and manifest truisms," Bishop Berkeley, *Alciphron*, Seventh Dialogue, *The Works of George Berkeley*, ed. A. A. Luce and T. E. Jessop, 9 vols. (London: Thomas Nelson and Sons, 1950), 3:324; G. W. F. Hegel, *Lectures on the History of Philosophy*, trans. E. Haldane and F. Simson, 3 vols. (London: Routledge and Kegan Paul, 1896), 3:283.

12. Gutmann, 31; Gebhardt 2:34.
13. Gutmann, 32–33; Gebhardt 2:35–36.
14. Gutmann, 33; Gebhardt 2:35.
15. Ep. 6, Wolf, 98; Gebhardt 4:36.
16. Wolf, 386.
17. Ep. 9, Wolf, 301; Gebhardt 4:271.
18. In an early letter to Oldenbourg (Ep. 4, 1661) Spinoza maintains that the existence of the thing defined does follow in a definition of "a thing which is conceived through itself and in itself," the example being a definition of God. In the *Ethics*, however, the primary definitions of God and substance are followed by lengthy demonstrations of their existence. The early view of definition is not found in the account of definition given De Vries (Ep. 8) and Tschirnhaus (Ep. 60). Spinoza's reply (Ep. 37) to Bouwmeester's request for an assured "method" of treating "the most exalted subjects" does not mention definitions.
19. Elwes, 113; Gebhardt 3:112.
20. Elwes, 99; Gebhardt 3:98.
21. Elwes, 195; Gebhardt 3:185.
22. Elwes, 104; Gebhardt 3:102.
23. H. Barker in Kashap, 101–2.
24. Ep. 10, Wolf, 109; Gebhardt 4:47.
25. S. Umphrey, "*De Natura*," [in *The Philosophy of Baruch Spinoza*, ed. Richard Kennington, Studies in Philosophy and the History of Philosophy, vol. 7 (Washington, DC: The Catholic University of America Press, 1980), 273–92.]
26. Hayes, 8, 9; Gebhardt 1:132–33.
27. René Descartes, 2nd *Replies*, HR 2:48–49; AT 9–1:121–22.
28. René Descartes, dedicatory epistle, *Meditations*, HR 1:135–36; AT 9–1:7.
29. *Replies*, HR 2:49–50; AT 9–1:122.
30. Gutmann, 7; Gebhardt 2:9.
31. *Discourse on Method* 3, 2nd paragraph.
32. Strauss, "How to Study," 178.
33. Elwes, 102–3; Gebhardt 3:101.
34. G. Tonelli, "Analysis and Synthesis in XVIIIth Century Philosophy Prior to Kant," *Archiv für Begriffsgeschichte* 20 (1976): 178–213.
35. *Meditations*, HR 1:155; AT 9–1:24.
36. *Substantia (sive ens)*, Ep. 9, Wolf, 107; Gebhardt 4:44.
37. Lachterman, in Shahan and Biro, 84.
38. Gutmann, 218–19; Gebhardt 2:240.
39. Compare E 4P39 with 5P10 and 5P39, with regard to the "death" of the body in the change from infancy to maturity, and the "chief endeavor" of the wise man "to change the body of infancy" to a state in which memory and imagination are of little importance.
40. "Spinoza is really thinking of the body as determining the mind," Barker, in Kashap, 149.
41. *Ethics* 3 P2S; Gutmann, 131; Gebhardt 2:142.

42. *Meditations*, HR 1:189–90; AT 9–1:64–66. See the author's "The 'Teaching of Nature' in Descartes's Soul Doctrine," *Review of Metaphysics* 26 (1972): 85–117. [Reprinted herein. *Ed.*]

43. Wolf, 228.

44. "Logically desire or the *conatus* is merely a principle of inertia," D. Bidney, *The Psychology and Ethics of Spinoza* (New Haven, CT: Yale University Press, 1940), 88.

45. *Short Treatise* 1.8; Gebhardt 1:47. See Wolfson 1.254.

46. See L. Strauss, preface to the English translation, *Spinoza's Critique of Religion* (New York: Schocken, 1965), 16.

47. G. W. Leibniz, *Opera philosophica*, ed. J. E. Erdmann (Berlin: Scientia Aalen, 1959), 142.

Chapter Thirteen

On the Intention of Leibniz

Leibniz published only one book, the *Theodicy*, in a lifetime of ceaseless writing. The purpose of the *Theodicy* is to show the harmony of faith and reason, of divine revelation and philosophy. I am concerned, however, mainly with a different harmonizing by Leibniz, one within philosophy: the harmonizing of ancient and modern philosophy. In my introduction I suggest that we cannot gain access to the harmony of the ancients and moderns unless we consider it together with the harmony of faith and reason.

1

Modern philosophy begins with a mathematically exact but also mechanistic understanding of nature. We can see this in Descartes and indeed in every one of the first wave of the moderns—that is, up to Leibniz. The problems of this first wave are very gross: (a) it appears impossible to account for life, organic life, within the mechanism of nature, and (b) it appears impossible to account for human awareness or what comes to be called "mind," either within the mechanism of bodies or outside and alongside of it, as a second kind of existence or substance. The alternatives are both impossible: a determinism that denies life, freedom, and thought; or some unintelligible dualism of mind and body. These two problematic phenomena, life and mind, were attributed to a common principle or source, the soul, by almost all premodern philosophers, even by Lucretius. Hence, looked at from the premodern tradition, the immediate and gross problem of this first wave of modern philosophy is simply the soul.

In this situation, this half century between the maturity of Descartes and the maturity of Leibniz, the modern beginning is emphatically controversial. On

the one side are the moderns, who accept the astronomy and laws of motion of Copernicus, Kepler, Galileo, and Descartes, and strive for a complete account of the whole, but at the expense of life and mind. On the other side are the ancients, or more exactly, mainly the Scholastics, who combine ancient philosophy and the Bible. Life and mind are understood in terms of the forms, the substantial forms which obviously retain, as regards an account of man, a superiority over the moderns. But they encounter the strong claims of modern astronomy and physics when the attempt is made to retain the ancient account of the whole.

The life of Leibniz unfolds as a recapitulation of these antitheses. First there is the youthful Leibniz, a Scholastic or an ancient; then there is Leibniz the modern atomist and almost a Cartesian; and then, finally, at the age of forty there is a synthesis, a harmonizing: the Leibnizian system that does not alter for thirty years.

We can gather a formula for this synthesis of ancients and moderns from dozens of Leibnizian writings. The formula has two parts. First, reinterpreting Cartesian mechanics by means of the science of dynamics, Leibniz was able to discover a spontaneous, active principle, whose nature is force. And, second, by this principle he was able to restore, or rather reinterpret, the ancient doctrine of the forms or of the soul, especially the human soul and its freedom. It would be possible to show that this formula, this synthesis, was of great interest to Leibniz's posterity, to those who were not only persuaded by the claims of modern astronomy and physics but also impressed by the ancient understanding of human things. For the same reasons, it may be of interest to us.

Our concern with this synthesis is blocked by two opinions about Leibniz, or by two appearances that he presents to us. The first is that he is really a Cartesian despite an almost lifelong opposition to Descartes. To be is to be a monad, that is, a soul. But no soul can have real or direct relations with its body or with any other souls. This dualism is not restricted to man: the Cartesian dualism is now universal, since every being is a soul and every soul has a body. The second difficulty is presented by the extraordinary doctrine—the pre-established harmony—by which Leibniz overcame this dualism. At the beginning of the world God foreordained that the states of all souls will be in agreement with the states of their bodies as well as with the states of other souls. This doctrine of pre-established harmony is called by Leibniz the consequence of "an original miracle worked at the creation of things."[1] Leibniz is thus ultimately a Cartesian, and because he is a Cartesian he must reconcile the quarrel of the ancients and the moderns by faith in the creation miracle, that is, by transferring it to the plane of the medievals or the Bible. The harmonizing of the ancients and moderns culminates in the reconciliation of philosophy and divine revelation, the theme of the *Theodicy*.

This result shows us that any approach to Leibniz through the quarrel of the ancients and the moderns is partial, an abstraction. In all of his writings we see him trying to reconcile four great quarrels: between Catholicism and Protestantism; between Christian faith and those whom he calls "the free thinkers" or "strong minds"; between Scholasticism and modern philosophy: and between the ancients and the moderns. In the midst of these disputes stood Leibniz, the peacemaker, the irenic man. But on what ground in the midst of these disputes did Leibniz stand? We wonder whether the thought of Leibniz on each of these quarrels is of the same kind, on the same plane. We also wonder whether the expression of his thought on all these quarrels is of the same kind. To this last question Leibniz gives the following general answer in two of his writings:[2] we must retain the distinction of the ancients between the mode of writing which is called exoteric, that is, popular, and that which is called acroamatic, that is, concerned with the truth. That Leibniz's writings combined both modes of writing was an accepted fact among his eighteenth-century students. To summarize our introduction: if we are to allow the quarrel of the ancients and moderns to appear in its place within the whole phenomenon called "Leibniz," we must approach him as a writer first of all and as a writer of an ancient species.

2

In my second section I show that, faced with the whole corpus of Leibnizian writings, it is possible to identify the one writing with which it is most sensible to begin.

After we have come to read Leibniz for a time we learn how to take our bearings: we learn what the character is of each of the writings and what the place is of each in his thought. Only then do we become students, learners within the cosmos of his thought. We discover that all of his writings point to what he calls a system of philosophy. Therefore we can divide the writings into statements of the system, of which there are only four, and nonsystematic writings. The four systematic writings are: the *Discourse on Metaphysics* (1686); the *New System* (1695); the *Monadology* (1714); and the *Principles of Nature and Grace, Based on Reason* (1714). But the systematic writings are not really statements of the system; for one thing they are too short to be accounts of their subject, the universe itself. The longest is only some forty pages. They are universal, but cryptic, nondiscursive, often aphoristic. Hegel said: "Leibniz's philosophy appears like a string of arbitrary assertions, which follow one on another like a metaphysical romance."[3] To this he added the pregnant remark: "It is only when we see what he wished thereby to avoid

that we learn to appreciate its value." We must, then, hold fast to these systematic statements; they supply the frame within which any Leibnizian thought must take its place. The second division we must make is between the published and the unpublished writings. The one writing that is both a statement of the system and published is the *New System* of 1695. It is problematic why Leibniz left so many writings, often quite complete and highly polished writings, unpublished in his desk or submitted them privately to individuals. "Who knows me only in my published writing does not know me," says Leibniz in a letter. The only writing of Leibniz known to me that discusses the problems of publishing the system is the *New System*. The *New System* has a final claim on our interest: it is the only systematic writing that begins from the side of dynamics or physics—from force—in its account of substance, as well as from the side of the human soul.

3

In my third section I show that in the *New System* Leibniz sought to expose to his readers both the difficulty of publishing his system and the solution to that difficulty.

In the first paragraph he begins with these three points: he had conceived his system several years before; he had submitted it to "one of the greatest theologians and philosophers of the age," whose name is not mentioned; and finally, after some discussion, this great man had withdrawn his censure from every proposition in the system. In this reserved manner Leibniz alludes to a remarkable affair, his correspondence with the eminent Jansenist theologian Arnauld. Nine years before the *New System* he had written his first and longest statement of his system, the *Discourse on Metaphysics*. He had submitted not the work itself but only its chapter titles to Arnauld. After several years of correspondence, during which Arnauld never saw the work itself, the verdict finally came: the propositions, that is, the chapter titles, are not censurable. Leibniz does not mention in the *New System* that he had not only conceived the system but written a complete exposition of it; therefore he does not have to explain why he is not going to publish the earlier *Discourse on Metaphysics*. From the *New System* by itself it is clear that he was unwilling to publish unless he was able to have, and to offer to his reader, some sanction from authority that his system is free from censure. As he explains in a private letter: "It is dangerous to commit oneself with these people. . . .This was therefore one of my reasons for getting these matters communicated to M. Arnauld—to sound him a little, and see what his attitude would be: but 'touch the mountains and they will smoke.' As soon as anyone goes aside,

however little, from the opinions of certain doctors, they break out in thunder and lightning."[4] It is reasonable to conclude: Leibniz did not publish the *Discourse on Metaphysics*, or the *Monadology*, or the *Principles of Nature and Grace, Based on Reason* because of fear of ecclesiastical censure. The *New System*, the one systematic writing he did publish, is therefore the systematic writing that is least revealing of his system, but most revealing of how he solved the problem of publishing at all. It must show both the character of the system and the harmonization that Leibniz was led to effect between his system and the great and little Arnaulds of his age. In a first but unpublished draft of the *New System*, its purpose is said to be "to serve the agreement of faith and reason in matters of importance":[5] this remains the intent of the published version. These details lead to this conclusion: we must expect that the lesson of Arnauld left its imprint on the form and content of the *New System*.

The problem that ignited the Leibniz–Arnauld correspondence was the status of the human soul. The problem of understanding the *New System* is that it states two contradictory theses about the human soul. In the first half, to be is to be an animal—in the broad sense, a plant or an animal or some other kind of living thing. A substance, that is, an animal, is a compound of an active principle, which is called "form" or "soul," or "like a soul"; and a passive principle, matter or body. This very Aristotelian description is mixed with a new element from Leibnizian dynamics: the nature of the active principle consists in force, "primitive force." Let us try to become accustomed to this identity. The forms are primitive forces. The forms, in Leibniz's words, are "constitutive of substances"; they are not themselves substances. Again, since the forms of animals may be conceived, as he says, "in imitation of the ideas we have of souls," the souls are constitutive of substances, that is, of the animals: the souls are not themselves substances. They are not separate beings, capable of existing apart, independently. It is therefore an obvious question whether the soul is capable of immortal existence in the afterlife. Thus in paragraph 7 Leibniz poses what he calls "the biggest question": "What becomes of these souls or forms after the death of the animal?" The very wording of the question appears to preclude one possible answer: soul and body both perish at death; this is not discussed. The second possibility is that the body perishes but that the soul lives on. It could live on either as separate, a very orthodox view; or it could become the form of another animal, namely, by metempsychosis, wandering from one body to another. Leibniz chooses a third possibility: soul and body both live together eternally. He supports it by appealing to the finding of three modern biologists, Swammerdam, Malpighi, and Leeuwenhoeck, who claimed on the basis of research with microscopes that the animal, as every organized substance, has no beginning, is never born. This strengthened Leibniz's view that the animal never dies. What is

clear is that Leibniz is able to say that the soul is immortal but in a highly unorthodox manner: since each of us animals is not aware of our previous eternal identity, we are forced to wonder about our future personal and eternal identity.

The full title of the *New System* is: *New System of Nature and of the Communication of Substances, as well as of the Union of the Soul and Body*. In the first half of the *New System*, no difficulty is raised regarding the communication of substances, that is, of animals; and the soul is the form, or the true unity, of the compound of form and body. Thus, neither communication nor unity is alluded to as a problem: there is no soul-body or mind-body problem, but there is a grave difficulty as regards the orthodoxy of Leibniz's view of the immortality of the soul.

Before turning to the second half of the *New System*, let us speak of the overall organization of the work. Leibniz shows in several ways that it falls into two halves: a predominately ancient and a predominately modern half. The *New System* consists of eighteen paragraphs. In the first nine paragraphs nine ancient writers are mentioned; in the last nine paragraphs no ancient writer is mentioned. In the first nine paragraphs, three moderns are mentioned, three modern biologists who agree with the view of three ancient writers that the animal has no beginning. Leibniz has a tendency to quote authorities in trinities: in the first half, he also mentions three modern philosophers who agree with the three modern biologists who agree with the three ancient philosophers. In the last nine paragraphs, only moderns are mentioned: Descartes or the Cartesians, for instance, on three occasions.[6] Thus the first half is the ancient part; the second half, the modern. This division becomes very explicit right at the juncture point. The last sentence of paragraph nine praises the ancients; the first sentence of paragraph ten criticizes the moderns. But the first half is not simply ancient; it is a reconciliation of ancient, mainly Aristotelian, views, with Leibnizian dynamics and modern biology. It composes the quarrel of the ancients and the moderns. On the other hand, the second half is not exclusively modern, or Cartesian, as we shall show. It culminates in the City of God; it is a composition of Cartesianism and Christian theology.

If we take the eighteen paragraphs of the *New System* and fold them in half at the middle, we discover that the two halves tend to become mirror images of each other as regards their questions. We have glimpsed this already: the last sentence of paragraph nine mirrors the first sentence of paragraph ten. The first paragraph of the *New System* resembles the eighteenth and the last: both speak explicitly of a just previous Leibnizian publication on dynamics. The work begins with and returns to this fact. Again, moving a step in from either end, the second paragraph resembles the seventeenth. Both treat the

same question: whether mechanical explanation is sufficient in physics. The mirroring of the two halves is most striking when we compare the seventh paragraph from the beginning with the seventh paragraph from the end. In paragraph 7, Leibniz propounds the "biggest question": what happens to the soul after death? In paragraph 12 he says, "I thought I had arrived in port, but I was cast back into the open sea." The great question is again the soul, or rather it is three questions: (1) how can the soul cause something to happen in the body and vice versa? (2) how can the soul substance communicate with other soul substances? and (3) finally, how can the soul and body be one? All three of these new questions imply one proposition about the soul, namely, the official Cartesian proposition that the soul is a substance separate from and independent of the body. This doctrine is in conformity with orthodoxy; therefore Leibniz now says "this puts in a marvelous light the immortality of our soul."[7] But it contradicts the first half of the *New System*, according to which the soul is not a substance and is not separable from the body, a doctrine not in conformity with orthodoxy. The soul doctrines of the first and second half of the work are evidently irreconcilable. The first is a synthesis of ancients and moderns; the second is a Cartesianism that supports an orthodox view of the soul's immortality. The second cannot be Leibniz's view because it demands the sacrifice of what is uniquely Leibnizian: that form as force is constitutive of body or substance. As we read in Leibniz's main writing on dynamics, "whether we call this [active] principle form, entelechy, or force, does not matter provided that we remember that it can be explained intelligibly only through the concept of forces."[8]

We shall therefore describe Leibniz's statements that assert that the soul is a separate substance as his "prudential Cartesianism." To see this more clearly, let us return to the three problems mentioned. The Cartesians, says Leibniz, "have penetrated to the difficulty": "there is very truly no real influence of one created substance on another."[9] Therefore Leibniz introduces the doctrine of the pre-established harmony. This doctrine solves none of the three problems: how souls and bodies interact, or how souls communicate, or how soul and body are one. What God pre-establishes at the beginning of the world is an agreement between the states of souls and bodies, and also between souls and souls. We are told that they agree but not that they communicate. We are told only that this has taken place; nothing is supplied to explain how it can take place. Note that the third problem, the union of soul and body, is simply left out in the cold. Leibniz points out this omission to us in the *Monadology:* the pre-established harmony accomplishes "the union, or rather the conformity, of the soul and the organic body."[10] This failure to unite soul and body concerns every being in the Leibnizian universe, since every being whatever has a soul and a body. Thus the "prudential Cartesianism" of Leibniz has this

consequence: the soul doctrine is in conformity with the orthodox notion of immortality; but, on the other hand, even on the basis of the divine pre-establishment of harmony there is no being in the Leibnizian universe that is truly one being. The solution is orthodox, but quite unintelligible.

We are thus led to consider the status of this ultimate doctrine, the pre-established harmony. This status is presented in two opposed ways in the *New System* and elsewhere, as in Leibniz's letters to Newton's friend, Samuel Clarke. Writing to Clarke, that is, to Newton, Leibniz says that the pre-established harmony is an original miracle worked at the creation. It may be understood as a miracle because what has been established, this disjunction between the operations of souls and bodies, is impossible. "According to this system [of pre-established harmony]," says Leibniz in the *Monadology*, "bodies act as if—what is impossible—there were no souls, and souls act as if there were no bodies."[11] This sentence is expanded in an unpublished fragment. This disjunction of souls and bodies is impossible because "the mechanical laws in each body are decrees of the soul or form of that body."[12] We recognize here the language of the first half of the *New System*: form or soul cannot be separate from body, of which it is the constitutive principle. The pre-established harmony is now seen to be a doctrine of the pre-established disjunction of soul and body, a disjunction that is, however, impossible. It is not surprising then that Leibniz should say in the *New System*, in the context of the pre-established harmony, that in philosophy we should not employ miracles or a *deus ex machina*, a miraculous intervention of deity. "In philosophy," he says, "we must try to give reasons, by showing in what way things are brought about by divine wisdom in conformity with the notion of the subject under investigation."[13] We must therefore embark on a new inquiry: to seek a second and philosophic account of the pre-established harmony, of the harmony between mechanism and formalism, between the moderns and the ancients. The dual structure of the *New System* is meant to point to this inquiry, to lead us back from the miraculous conformity of Cartesianism and orthodoxy in the second half to the problem of the philosophic harmonization of the ancients and moderns in the first half. It ends in the eighteenth paragraph where it begins in the first, with the science of dynamics.

4

In my fourth section, I show what Leibniz thought to be a substance, that is, what kind of togetherness of form and matter or soul and body it is.

Leibniz's argument for substance has an identical character in almost every context: it begins with a critique of Descartes. It is directed against two as-

sertions of Descartes: that the nature of body is extension and that animals are only mechanisms. His critique is then directed against the whole official two-substance duality of Descartes: that body in general is a substance and that each human mind is a substance. For if animals are not mere mechanisms, they share in the perceiving, feeling, that is, psychic, life of man. And since man as an animal is not mere mechanism, his animality can be reintegrated with his psychic existence.

Descartes had said that the nature of body is extension. Extension is being spread out in length, breadth, and depth, as in an object of solid geometry. Descartes said, "I put before myself the object of the geometricians, which I conceived to be a continuous body, or space indefinitely extended in length, breadth, and depth, which was divisible into many parts, and which might have various figures and sizes, and might be moved in all sorts of ways."[14] Descartes identified this object of the geometricians with the substance of the world. That is the first problem: the pure or intelligible or "abstract" object of geometry is said to be the real nature of the particular bodies that we move, and that resist our touch. Extension, according to Descartes, is the ultimate concept of bodies because it cannot be analyzed further into simpler concepts that it presupposes. For instance, the figure or shape of any particular body presupposes that it is extended; but extension presupposes nothing.

Leibniz's criticism proceeds in three main steps. The first criticism is that extension, far from being an ultimate or simple concept, must be analyzed into plurality, continuity, and coexistence. Any extended body has parts or is divisible. These parts must together compose a continuous body; they must then coexist. What can these parts be? They cannot be bits of body, say atoms, because atoms are divisible and breakable, since they are not infinitely hard. What is needed is a part that has no parts, a true unit. This unit cannot be a point, at least a geometric point, because out of points no continuity, no extended continuum, can be formed. Hence the true unit or part cannot be a physical thing or one capable of being represented by geometry, that is, by the imagination. The true unit or part must be trans- or subphysical; it must be a "metaphysical point."

The second criticism is that even if extension is the ultimate concept, that is, absolutely prior in the order of knowledge, it doesn't follow that it is absolutely primary in the being of bodily things. You cannot derive any of the properties of body from extension. The primary nature of bodies must be the sufficient basis, the sufficient reason, by which all the properties of body can be accounted for. Take an example: any body resists being moved; you have to push or pull it to get it started. And once started it persists in its motion. Any body has resistance or inertia, a kind of passive force. What necessary connection is there between being extended and this passive force? None

whatever. Extension is wholly indifferent as regards resistance. Extension retains the character of its origin as a geometric concept: concepts do not resist bodies. What is needed is a primary nature, the true unit, that accounts for this passive force or resistance.

The third criticism is that a particular body not only passively resists being moved, but it may actively force another body to move. What is the cause of this active or motive force? Descartes had computed its magnitude by multiplying the size of a body by its speed, its mass by its velocity—mv. He called this magnitude "the quantity of motion," and this is rather evidently impossible, even in Descartes's terms. This motion whose quantity is in question is possessed in an instant. But Descartes had defined motion as "transference of one part of matter or one body from the vicinity of those bodies that are in immediate contact with it . . . to the vicinity of others."[15] This motion or transference is not possessed at an instant; in fact it is never possessed as a whole but only in succession. This Cartesian motion is therefore not a real thing, says Leibniz, and in no way is it that active principle which causes a body to move. We must first compute this motive force accurately: it is mv^2, not mv. This is the force that bodies exert on one another, a force that is possessed by bodies and so by the component parts of bodies. As such it varies, or is modified in the contact of bodies, or it is derivative. It must therefore be derivative from something that is constant or ultimate, "primitive"—which is not, therefore, itself possessed by a physical part. This constant must be an active force of a metaphysical kind. It will therefore be incapable of being represented geometrically or by images.

These three criticisms together yield Leibniz's first notion of substance, substance as a simple. That which accounts for bodies must be a true unity and capable of active and passive force. A substance is a being capable of action and passion. Observe that this unit must account for both bodies and their motions. This is a first reason why Leibniz follows Aristotle in calling the true unit a form. This true unity is only explained in the dynamic writings; hence it has often been neglected. The true unit or metaphysical point is called by Leibniz "primitive active force." Its nature is to be always at work striving to exert itself; hence Leibniz calls it *energeia*; as is true of the forms of Aristotle, its mode of being is to be "at work." It is a mean between mere idle capacity or potentiality and action. This means it is always striving, and always succeeding, in passing from potentiality to action. Because it is always attaining this end, Leibniz calls it an "entelechy"; as is true of the forms of Aristotle, it has or holds its goal in its own activity. To pass into action means to encounter the action of other primitive active forces. Hence to pass into action means to become limited, modified, by these others. In the moment when it passes into action, therefore, primitive active force becomes derivative ac-

tive force. Primitive forces belong to metaphysics; derivative forces are the study of the physicist. One primitive force is capable of resisting another; this passive force is its primitive passive power. It is also called *materia prima*, prime matter. Thus primitive active force and primitive passive force are two aspects of the same unit of primitive force: "the indwelling nature does not differ from the power of acting and suffering."[16] It is the union of, or rather the togetherness of, this activity and passivity, this active force and this passive force, that Leibniz calls a monad.

This monad, this primitive force, has an activity that is spontaneous or underived and therefore constant. "Every particular substance acts without cessation."[17] Nothing can affect or modify it as a source; only in the moment it passes over into encounter with the effects of other monads, when it becomes derivative or physical force, is it affected. This unalterability of the monad is the true meaning of Leibniz's repeated assertion: "in strict metaphysical language, there is very truly no real influence of one created substance on another"[18]—that is, on what he calls the inner being[19] of the monad, the monad as spontaneous source. Monads as sources never encounter or influence one another; but their derivatives, or derivative forces, are in constant action and reaction at every moment. Since nothing can enter or leave, that is, affect the monads as unalterable sources, Leibniz says "the monads have no windows."[20]

At this point Leibniz thinks he has accounted for bodies. A body is a congeries or collection of derivative forces acting upon each other. When my hand touches this desk, a congeries of derivative forces is, as a whole, pressing against another such congeries. The forces are derivative, hence bodies are not real but phenomenal. But derivative forces have their sources in what is real: in monads, simple units of primitive active force. Bodies therefore are *phenomena bene fundata*: well-founded phenomena. Physics is grounded in metaphysics.

We have now laid the basis for Leibniz's doctrine of pre-established harmony. On the one side we have monads or simples, each striving to exert its effort. Each is purposive, endeavoring to accomplish its end in action. The sphere of the monads is therefore the sphere of final causes. On the other side we have the derivative forces, or the sphere of bodies. Bodies, that is, derivative forces, act in accordance with the laws of efficient causes or of motions. But monads, or primitive forces, are the sources of derivative forces or bodies. Hence the sphere of final causes is in necessary harmony with the sphere of efficient causes because, first, one is the source of the other. There is, however, another principle that bonds together the sphere of final with that of efficient causes. Assume there are only two monads in the universe and they collide. The action of the first, that is, its derivative force, is resisted by the

passive force, that is, the derivative passive force, of the second monad. It would make no difference if we reversed the terms active and passive, that is, if we attributed the action to the second monad and the passive force to the first monad. The same thing is happening, because each monad is both acting and reacting in the collision; and the quantity of force in the action is equal to that in the reaction. No force is lost or gained by either in the collision, and this is true not only of any hypothetical two-monad situation but of our whole actual universe of monads. This constancy of the quantity of force in the universe is the bond of the harmony of final and efficient causes, that is, of the pre-established harmony.

At this point, it must seem as if I had settled for a mere part of Leibniz's problem. We have explained why the monad has no windows, without mentioning perception. But is not the monad the soul, that is, something that can look out of a window and see the "external world"? Furthermore, we have explained the pre-established harmony without mentioning souls and their relations with bodies. Is not the pre-established harmony a solution to a psychophysical problem, a problem of man or, at least, of animals? In reply, let me say in general that, as I understand Leibniz, a true substance is not a monad but an animal. At the beginning of Leibniz's best-known writing, the *Monadology*, we find the monad, a simple and a soul, about which much is said; at the other end of the *Monadology* we find the animal, a compound of soul and body, for example, man.[21] About the animal compound students of Leibniz say little or nothing. Each is said by Leibniz to be by nature eternal, barring divine annihilation. But the whole structure of the *Monadology* is based on the distinction of simple and compound, monad and animal. Of its ninety paragraphs, the first two-thirds treat first the monad apart, and then the monad and God; at paragraph 61, Leibniz begins to treat of the animal compound. Nevertheless, the general character of the pre-established harmony is the same when we turn to perception and to the animal, in the next section.

5

The substance of which we have spoken above is a simple substance, a monad. Every monad can enter into compounds; hitherto this compound has been presented as a body, an aggregate, that is, an unorganized collection of interacting forces. This must now be corrected: every monad is not only a part of a collection but the dominating part of a collection of monads. This collection, now unified by its dominant monad, has two names in Leibniz. It is an animal, or it is a natural machine. Every subordinate monad in this animal machine is in turn the dominant monad of a tinier animal, and it in turn is di-

visible into smaller animals to an actual infinity. In this scheme there is still inanimate matter, namely, such a collection of animal machines as is not unified by a dominant monad. Leibniz's favorite metaphor for inanimate matter is a pond of fish because this figure reminds us that the parts of an inanimate body are themselves animate. Hence the mode of being of a monad is to be the dominant monad of an animal machine, what Leibniz therefore calls an entelechy. The collection of submonads dominated by this entelechy Leibniz calls the body proper of the dominant monad. Thus we have moved from the simple to the compound, from the simple as entelechy, a point of force exerting itself, to the simple as entelechy of the animal compound. No second entelechy, no formative principle of the compound as such, is needed; about this Leibniz is emphatic. To be, then, is ultimately to be a compound animal substance, which is still a being capable of action and passion. "A true substance," says Leibniz, "such as an animal, is a compound of an immaterial soul, and an organized body; and it is the compound of these two which is called *unum per se*"[22]—one in and for itself.

We now turn to perception. Perception is a necessary condition of being a soul. It appears to belong both to the monad as simple and to the monad as dominating a compound. Are these not the same? Leibniz usually says every monad has perception, but sometimes he says it has "something like perception."[23] Similarly he says that the active principle of the monad is soul or form or "a form analogous to a soul."[24] It is "besouled, or as good as besouled."[25] On the other hand perception also belongs to the compound, that is, to the animal, an organization of simples ruled by a dominant monad. The perception of the animal is mediated, intensified, focused by the fact that it has sense organs. We need then an understanding of perception that is very broad, that is the lowest common denominator of all states of all monads that have at least "something like perception." The qualification "all states" is necessary: sometimes our monads, our souls, are asleep or stunned by a blow; and there are times in the early development of an animal, for example, ourselves, when the perceiving of the monad is somehow "dormant."

This low and broad notion of perception is: the passive reception or registering of a multiplicity of effects in a unity, or at a point. Consider the monad as primitive active force. The correlative aspect of this active force is primitive passive force, that is, resistant force. The passion of the monad is its perception: "our perceptions or sentiments are passions," says Leibniz.[26] The monad "cannot exist without some affection, which is nothing other than its perception."[27] At the point of resistance and in virtue of its active force, the monad resists, therefore registers, all the lines of force that act upon it at that point. But since an infinity of lines at all angles meet at this point, all the lines of force in the universe meet at this point. Therefore a monad is affected by,

registers, or "mirrors," as Leibniz says, the whole universe. The assumption here is that the lines of force are uninterrupted, that the world is full, without emptiness, a plenum. "Because the world is a *plenum*," says Leibniz, "everything is connected, and each body acts on every other body, more or less, according to the distance, and by reaction is itself affected thereby, so that each monad is a living mirror . . . representative of the universe."[28] Thus it remains true that the monad has no windows, or nothing enters or departs from it. But it need not have a window to have perception. The primitive force which is a monad becomes derivative passive force when it meets the derivative forces of other monads and reacts or registers all the forces in the universe at every moment. Of course the forces that are large and close are more clearly and distinctly perceived. This same analysis shows that, when we move from the monad as simple to the monad as dominant and perceiving principle of an animal compound, nothing at all need be altered of our previous remarks on the pre-established harmony.

This is not to deny that Leibniz's account of the animal and its perception is beset with great obscurities. Two summary remarks are appropriate here. First, Leibniz appears to have assumed rather than explained the functioning of organic form, as we find it in the natural or animal machine. The dominance of the dominant monad is an enigma; as active and passive, the dominant monad is the source of the motion and the perception of the animal; it is expressly excluded from being an explanatory cause of the detail, the details of the form, of an animal.[29] Second, Leibniz appears to have proceeded by reinterpreting each side of the Cartesian dualism separately, without ever joining his two accounts. We have followed him as he reinterprets the inanimate particle so that in compounds it can account for animal life. But the step from "something like perception" to perception, and the further step to human thought, to apperception as he calls it, is difficult. We also find in Leibniz an analysis that moves in the opposite direction, from human perception to its composition out of small or little perceptions and therefore to the supposition of small perceiving entities, the monads. I must state arbitrarily that this regressive analysis is, in my opinion, also unsuccessful. Both these points, however, must be regarded as provisional.

6

In this section I indicate briefly how to approach the Leibnizian writing best known to many, the *Monadology*.

We return to the problem as faced in the *New System*. We have given some account of the conclusions of the first half: the reconciliation or the harmony

of forms and final causes, on the one hand, and mechanism on the other, as exemplified in the true substance, the animal machine. The "prudential Cartesianism" of the second half of the *New System* is what meets us on the surface of Leibniz's best-known writing, the *Monadology*. Its great theme is the monad: a simple substance that enters into compounds; which is a perceiving soul; which has no windows and no real relation with other souls; the states of which must be conformed to the states of other souls by the divinely preestablished harmony. To correct this account from within the *Monadology* is indeed possible. The correction is easier if we observe the silences of the work as compared with other writings that treat of substance. The *Monadology* never mentions force, except once in passing towards the end;[30] hence it in no way suggests that the monad has anything to do with force. It never mentions form; therefore it does not speak of the monad as a union of form, that is, primitive active force, and prime matter, that is, primitive passive force. To speak of the monad as having passive force or resistance, or as the source of the force in bodies, would be repugnant to its treatment of the monad as a separate soul substance, that is, to its prudential Cartesianism. Nevertheless the *Monadology* is an account of simple substance whose active principle or source of change is appetition and whose passive principle is perception. To correct the *Monadology*, to free it of its prudential element, we must acknowledge that the active and passive elements in its account of the monad must be identical with the active and passive elements of simple substance in the writings on dynamics, in the *New System*, indeed in all the writings under discussion. Leibniz did not waver, we must assume, from writing to writing in his account of substance. This implies the analogy: primitive active force is to primitive passive force in the writings on dynamics as appetition is to perception in the *Monadology*. Or, rather, it implies the primary identity of primitive active force with appetition in the monad. This identification is corroborated by the identical language used to specify both: both are the active element in the monad, the self-sufficient source of change; both are called "entelechies"; both are the sources of all the detail and variety that we meet in the physical world.

7

In my final section I wish to treat in a speculative manner one aspect of Leibniz's theology, the relation of God to the world.

The world is a plurality of monads, each the dominant monad of an animal machine. In God is a plurality of ideas. How is the plurality of monads in the world related to the plurality of ideas in God? There are two ways, apparently discrepant, in the Leibnizian writings.

The first and most frequently presented way is that of the *Monadology*. The place of the ideas is the mind of God. The ideas or essences in the mind of God are understood as possible, as possibilities. Any collection of possibles that are compossible, that can coexist together without contradiction, is called a "possible world." Among possible worlds some have more perfection than others. God chooses—his will has chosen—the best of all possible worlds, namely, this actual world of ours. It is probable, on this view, that each possible is an idea of a particular monad or of a particular animal compound, say, Alexander the Great. In either case, the possible as essence is not what is common to many; rather, it is the essence of a unique individual, a monad or animal. Observe that here we have a source of the infinite dignity of the modern individual, each of whom has his idea in the divine understanding. Any collection of compossibles, any possible world, excludes certain possibles: the field of possibles in God's mind is wider than the field of actual individuals in the world. On this first view the possible is an idea, an intelligible, a *noeton*; it is the object of the activity of the divine understanding; it has no innate activity of its own.

The second way is presented most fully in a writing called *On the Radical Origination of Things*, written in 1697 but never published by Leibniz. Again we are concerned with the possibles, but the term "idea" is absent; its place is taken by "essence." Again the place of the possibles is in God, but neither the mind of God nor the understanding of God is mentioned in the writing. The wisdom of God is mentioned but not in connection with the possibles. The possibles, that is, the essences, have an inherent tendency to become actual. Let us hear this remarkable thought in Leibniz's words. "There is in possible things, that is, in possibility or essence itself, a certain exigent need of existence, and, so to speak, some claim to existence; in a word, essence of itself tends towards existence." The suggestion is that of themselves the possibles tend to and do become actual; otherwise the tendency would be of no consequence. Nowhere, so far as I know, does Leibniz attempt to relate this tendency to the election of the divine will. It is therefore difficult to take this possible as simply an intelligible, an idea. On the other hand, if we grant to the possible an innate tendency to become actual, to become, that is, of itself a monad, we have this difficulty: there is no clear distinction between God and the world, between the possibles as merely possible and the world of monads that they become. This difficulty can perhaps be overcome if we recognize that the description of the monad coincides in many respects with the possible. The place of the possibles would then be the place of the monads, namely, the world. To accept the identity of possibles and monads means to side with an old interpretation of Leibniz: that he is a pantheist. He does indeed say, at least once, that the place of the possibles is the world: "The ac-

tual universe is the collection of the possibles which forms the richest composite."[31] The tendency of the monads is called by the same name as the tendency of the possibles, *conatus*. To the possible one can, it appears, apply the description of the monad: it is always passing from potentiality into actuality. There is a problem in the first view that finds its resolution in this second one. Leibniz calls the mode by which the world proceeds from God "emanation." This term does not well describe the action of the divine will in enacting the possibles into the beings of the world. On the other hand, the same term, emanation, is used to describe the *conatus* within the monad. Note that on this pantheist view, the range of possibles is identical with the range of actual beings; and this accords with Leibniz's expressed view that every possible is characterized by a striving, a *conatus*, toward existence.[32] In the *Radical Origination*, Leibniz has replaced the possible as idea by the possible as essence; he also speaks of the quantity of essence and of its synonym, perfection. This quantification becomes intelligible through the identification in many places of perfection with force and, therefore, with the primitive active force of the monad; essence would then be identical with what is everywhere called form; and this is far from implausible.

The pantheist account meets its major objection in Leibniz's many proofs of a transcendent, extramundane God. Among these proofs the cosmological argument, which ascends from the world to God, has a paramount position. The *Radical Origination* begins with a cosmological proof of the existence of God. Consider, says Leibniz, the different states of the world. Each succeeding state is, in a certain way, only a copy of the preceding state, despite certain laws of change. Therefore the successive states of the world can be likened to successive copies of a book. The succeeding state is also caused by the antecedent state. Any one state, any one copy, might be a sufficient reason for the following state, the following book, as it were. We come now to the decisive assertion: no matter how many antecedent states we suppose, we never discover a sufficient reason why there exists such a series at all—why there is any world at all and why this world rather than some other. There must therefore be one ultimate, extramundane, sufficient reason of things. This sufficient reason Leibniz calls "God."

The difficulty with this argument is mainly an external one: it is in emphatic disagreement with what we know of Leibniz's doctrine of the world, as already discussed. This discrepancy is suggested by the silences of this writing: it never mentions the monads, or simple substances, or the doctrine of force. In this argument, each state of the world is taken as discrete or separate from its antecedent state; and the antecedent state is the antecedent cause—in fact, the whole cause—of the following state. The causality of the argument is exclusively efficient causality; it is therefore an abstraction from

Leibniz's causality, which is a harmonizing of efficient causality and final or purposive causality. In this argument all action comes from an external agent; in the monad or the compound all action comes from an internal agent. The causality of this argument belongs to what Leibniz invariably calls "geometrical physics," the physics of Descartes, as distinct from a physics whose dynamic principles have their source in metaphysics. The geometrical character of this argument is confirmed by a detail: the series of books to which the states of the world are compared are said to be books of geometry. The ultimate first book of the world, from which all its states are copies, is Euclid. We are reminded of a famous sentence spoken by the first geometric physicist, Galileo: the book of the world "is written in the language of mathematics, and its characters are triangles, circles, and other geometric figures." In the central, that is, the ninth, paragraph of the *Radical Origination*, Leibniz explains the insufficiency of a geometrical account, that is, of his proof in the first paragraph. The world takes place not only according to geometrical or material truths but also according to formal or metaphysical ones. He alludes in this manner to the forms, namely, the active forces of the monads. As a geometrical argument, the cosmological proof of the existence of God in the *Radical Origination* is not a Leibnizian but a Cartesian argument. Descartes had said, "I do not accept or desire any other principle in physics than in geometry."[33] The proof has the same character as the miraculous version of the pre-established harmony: it is a prudential Cartesianism of Leibniz. But this means that we have not found a Leibnizian answer to the demand for "a complete reason [*rationem plenam*] why there is any world at all, and why this world rather than some other." And this is the very demand that is the theme of the *Radical Origination* and that is repeated in *Principles of Nature and Grace*. "Nothing happens without its being possible for him who should sufficiently understand things to give a reason sufficient to determine why it is so and not otherwise. This principle laid down, the first question which should rightly be asked, will be, *Why is there something rather than nothing*?"[34] It is precisely because of his "prudential Cartesianism" that the answer to this ultimate question in Leibniz's thought remains obscure. In the present state of Leibnizian studies we do not yet know the extent or the kind of Leibniz's prudence. But this means that we do not understand his harmonization of the ancients and moderns because we have not sufficiently studied Leibniz as an ancient writer. We do not know the extent, or rather the nature, of his prudential agreement with orthodoxy, that is, of his harmonization of philosophy and biblical faith. In this situation we must at least hold fast to the fact that Leibniz is an ancient, that is, a prudent writer. His prudence is described by an eighteenth-century student of Leibniz, who took the side of the ancients, in the following manner: "[Leibniz] did nothing more or less than

the ancient philosophers were wont to do with their exoteric lectures. He observed a bit of prudence, for which our latest philosophers have become much too wise."[35]

NOTES

"On the Intention of Leibniz" was delivered at St. John's College, Annapolis, Maryland, spring 1967. References to *The Philosophical Style of Nizolius, New System, Discourse on Metaphysics, De Ipsa Natura,* and *Monadology* are by section or paragraph number. *Ed.*

1. *The Leibniz-Clarke Correspondence*, ed. H. G. Alexander (Manchester: Manchester University Press, 1956), [Fifth Paper] 85.

2. "Est tamen inter philosophandi modos discrimen ingens, alius enim est, ut sic dicam, Acroamaticus, alius Exotericus. Acroamaticus est, in quo omnia demonstrantur, Exotericus, in quo quaedam sine demonstratione dicuntur, conformantur tamen congruentiis quibusdam et rationibus topicis, vel etiam demonstratoriis, sed non nisi topice propositis, illustrantur exemplis et similitudinibus; tale dicendi genus dogmaticum quidem seu philosophicum est, acroamaticum tamen non est, id est, non rigorossissimum, non exactissimum." ["There is, however, a vast difference between modes of philosophizing, for one is, if I may so speak, Acroamatic, [and] another is Exoteric. The Acroamatic mode is that in which all things are demonstrated; the Exoteric is that in which some things are said without demonstration, but they are still given confirmation by means of certain similarities and by dialectical [*topicis*] arguments, or even by arguments based on definition, but not proposed except dialectically, [and] they are illustrated by examples and likenesses. Such a kind of speaking is indeed dogmatic or philosophical; however, it is not acroamatic, that is, not most rigorous, not most exact." *Ed.*] *De Stilo Philosophico Nizolii*, in G. W. Leibniz, *Opera Philosophica*, ed. J. Erdmann (1840: Reprint, Scientia Aalen, 1959), 63. The discussion of the exoteric-acroamatic distinction is found in 16 and 17, that is, in the two central sections of this work.

"La distinction des anciens entre la manière d'écrire exoterique, c'est-à-dire populaire et l'acromatique, qui est pour ceux qui s'occupent à découvrir la vérité, a lieu ici. Et si quelqu'un vouloit écrire en Mathématicien dans la métaphysique ou dans la Morale rien ne l'empêcheroit de le faire avec riguer." *Nouveaux Essais* 2.29.12 in Erdmann, 291; *New Essays on Human Understanding,* trans. and ed. Peter Remnant and Jonathan Bennett (Cambridge: Cambridge University Press, 1982), 260–61. This distinction must be compared with that between the "metaphysical sense" and the "moral sense," made from the outset of the *Discourse on Metaphysics* and throughout, especially in sections 1 and 35.

3. G. W. F. Hegel, *Lectures on the History of Philosophy*, vol. 3, trans. E. S. Haldane and Frances H. Simson (London: Routledge and Kegan Paul; New York: The Humanities Press, 1963), 330.

4. To Ernst von Hessen-Rheinfels, 12 April 1686. *Die philosophischen Schriften von Gottfried Wilhelm Leibniz*, ed. C. I. Gerhardt (Hildesheim: Georg Olms, 1965), 2:24.

5. Gerhardt 4:471.

6. In *New System* 11 (in Gerhardt 4:482) an allusion is found to "the Democritean doctrine of atoms," an ancient doctrine embraced by a modern philosopher, Cordemoy. See also, *G. W. Leibniz: Philosophical Essays*, trans. Roger Ariew and Daniel Garber (Indianapolis, IN: Hackett, 1989), 142.

7. *New System* 16.

8. G. W. Leibniz, *Specimen Dynamicum*, part 1. *Philosophical Papers and Letters*, ed. Leroy Loemker (Chicago: University of Chicago Press, 1956), 2:721; Ariew, 125.

9. *New System* 13.

10. *Monadology* 78, in Gerhardt 6:620; Ariew, 223.

11. *Monadology* 81.

12. Quoted by Harald Höffding, *A History of Modern Philosophy*, trans. B. E. Mayer (New York: Dover, 1955), 2:518 n. 75.

13. *New System* 13.

14. René Descartes, *Discours de la méthode*, ed. E. Gilson (Paris: J. Vrin, 1930), 36.

15. *Principles of Philosophy* 2:25; AT 8:53–54; HR 1:266; CSM 1:233.

16. *De Ipsa Natura* 9, in Erdmann, 157; Ariew, 160.

17. *De Ipsa Natura* 9.

18. *New System* 13; *Monadology* 51; *Discourse on Metaphysics* 26, 32, in Gerhardt 4:451; Ariew, 58, 63–64.

19. *Monadology* 51.

20. *Monadology* 7; *Discourse on Metaphysics* 26.

21. Compare the assertions on the imperishability and lack of natural generation of the simple substance in *Monadology* 4, 5 and of the compound substance in *Monadology* 76, 77.

22. To Remond, 4 November 1715, in Erdmann, 736. [Gerhardt 3:657. English translation in *Leibniz Selections*, ed. Philip P. Wiener (New York: Scribners, 1957), 554. *Ed.*]

23. "In quo est velut perceptio, et appetitus." ["In which there is, as it were, perception and appetite." *Ed.*] *De Ipsa Natura* 12.

24. "Modo sumatur spiritus non pro re intelligente, (ut alias solet) sed pro anima, vel formae animae analogo." ["Spirit is not here to be taken for an intelligent being, as is usually done, but for a soul or a form analogous to soul." Loemker 2:819. *Ed.*] *De Ipsa Natura* 12.

25. Letter to de Volder, 23 June 1699, in Wiener, 167.

26. "On peut dire en peu de mots quant à l'esprit que nos volontés et nos jugemens ou raisonnemens sont des actions, mais que nos perceptions ou sentimens sont des passions." *Discours de Métaphysique*, ed. H. Lestienne (Paris: J. Vrin, 1929), 50. This is from a long passage not included by Leibniz in the final version of section 14.

27. *Monadology* 21.

28. *Principles of Nature and Grace* 3, in *Les Principes de la nature et de la grâce, fondés en raison; et Principes de la philosophie ou monadologie*, ed. A. Robinet (Paris: PUF, 1954), 31; Ariew, 207–8.

29. *New System* 3.

30. *Monadology* 80.

31. Wiener, 92.

32. Wiener, 92.

33. *Principles of Philosophy* 2.64; AT 8:78; CSM 1:247.

34. *Principles of Nature and Grace* 7.

35. G. E. Lessing, *Gesammelte Werke*, ed. Paul Rilla (Berlin: Aufbau Verlag, 1954–1958), 7:466.

Chapter Fourteen

Nature and Natural Right in Locke

"The United States . . . virtually alone among nations, found and to some extent still finds its identity not so much in ethnic community or shared historical experience as in dedication to a value system."[1] This statement is by a distinguished British social scientist of our day. He means by it to refer to the doctrine of inalienable natural rights by which the thirteen colonies justified their existence as a nation—in the Declaration of Independence. But by using the social science language of "value systems" he camouflages the fundamental fact that these rights were understood as natural rights. The moral right to be a nation was grounded in an appeal to nature, to "the laws of nature and of nature's God."

After an eclipse of more than a century, the concept of rights has experienced a great revival of late, and now takes a central place in ethical and political theory. Is this some kind of return to the thinking of Jefferson and the founders over the heads of, or behind the backs of, those celebrated nineteenth-century thinkers who in one way or another agreed with Marx—Marx who said that the notion of human nature, of man in general, who belongs to no historical class, has "no reality" and "exists only in the misty realm of philosophical phantasy"?[2]

The return to rights proves to be a turn to human rights or individual rights, but not a return to natural rights. We gain a quick insight into this situation by listening to Ronald Dworkin, the author of *Taking Rights Seriously* (1977). Dworkin notices that the phrase "natural rights" has for many people "disquieting metaphysical associations"; that is, to speak of nature is to commit the sin of metaphysics. Nevertheless, Dworkin suggests that we resume the use of the phrase "natural rights"; "the assumption of natural rights is not a metaphysically ambitious one." It is very unambitious indeed: "for the assumption

of natural rights requires no ontology more dubious or controversial than any contrary choice of fundamental concepts would be." The concept of natural rights is an ultimate which like all other ultimates is not theoretically defensible. Nevertheless, Dworkin acknowledges that "deep theory" needs to discover something ultimate that is "not the product of any legislation, or convention, or hypothetical contract." But this does not lead Dworkin to investigate a ground in nature. What lies beyond law and conventions for Dworkin appears to be only the resolution to "take the protection of certain individual choices as fundamental."[3]

We turn to Locke in the remainder of this paper, since his thinking on natural right is the principal philosophical source, as is generally acknowledged, of American thinking on the subject. There is another reason: in the last generation the conclusion has become increasingly widespread among Locke scholars that there is no rational basis, according to Locke himself, for his doctrine of natural right. And if Locke himself did not believe in the rationality of the inalienable rights of the individual, why then should we?

THE *LOCUS CLASSICUS* OF NATURAL RIGHT IN LOCKE

If we turn to the passage in Locke's writing that is the *locus classicus* for his teaching about natural right, we find that he is talking about natural law—not natural rights. In *Second Treatise* 6 he says:

> The state of nature has a law of nature to govern it, which obliges every one: and reason, which is that law, teaches all mankind, who will but consult it, that being all equal and independent, no one ought to harm another in his life, health, liberty, or possessions.

The grand imperative of the natural law being advanced here is "Do not harm another in his life, health, liberty, or possessions." From what premise or premises can reason infer that conclusion—reason which, we recall, was said to be the "law of nature"? For a brief moment, it appears to be that because men are "all equal and independent" they ought not to harm others. But the suggestion is overwhelmed by a passage about man's divine origin.

> For men being all the workmanship of one omnipotent, and infinitely wise maker; all the servants of one sovereign master, sent into the world by his order and about his business, they are his property, whose workmanship they are, made to last during his, not one anothers pleasure.

We can divide that passage into the two assertions: God, an omnipotent and infinitely wise being, made us; and, because God made us, he owns us, as his property. From these two premises, we are supposed to derive the grand conclusion: "Preserve mankind," or as previously put, "Do not harm another in his life, health, liberty, or possessions." To harm another, to commit suicide, even under torture, would be stealing from the Almighty.

This remarkable argument may be briefly contrasted with features of the natural law argument of Thomas Aquinas.[4] Thomas maintains that the natural law is evident to natural reason, whereas Locke's argument, insofar as it presupposes the miracle of divine creation, which he makes no effort to justify by natural reason (*Essay* 4.10), must be derived from divine revelation. Thomas's doctrine is based on natural properties inherent to, and observable within, human individuals, whereas Locke argues not from internal natural properties, but from a single external relationship of creature to creator. The first of the natural properties inherent to men in Thomas's argument is the natural inclination of substances to preserve themselves. It is notable that this thesis, which reminds us of the natural right to self-preservation, forms no part of Locke's natural law argument in 2.6. Locke's exclusive reliance on man's createdness, rather than on his natural properties, confirms the view that the whole "workmanship" argument should be assigned to political theology.

The majority of Locke scholars, led in this country by John Yolton, have concluded that Locke never offered an argument evident to natural reason that would be a proof of the natural law theses just summarized. They were aware that Locke says the natural law is "plain and intelligible to all rational creatures" in the *Second Treatise* (2.124), and that he said it is knowable "without the help of positive revelation" in the *Essay* (1.3.13). They could not find the required argument. In their quest they considered Locke's claim in the *Essay* that morality is capable of demonstration, which is treated at length in Books 2–4. They concluded that the demonstrative morality was a failure, according to Locke himself, and therefore that Locke knew his attempt to demonstrate the natural law had failed. The current interpretation of Locke is dominated by the paradox that Locke asserted that the natural law is demonstrable, but that Locke tried to find a demonstration and failed. The paradox is worsened by the fact that Locke built civil society and the *Second Treatise* on that very undemonstrated natural law, despite the assertion in the *First Treatise* that "reason . . . is [man's] only star and compass" (1.58). Finally, the dominant view has increasingly followed Yolton in holding that Locke's natural law is based on divine revelation, and it uses the later book *The Reasonableness of Christianity* (1695) to support this finding. "It is clear," says Yolton, that "[Locke] took a second and easier way to moral principles, those revealed in

scripture, aided by his own reason as a guide to others consistent with God and man."[5] It is this majority position that will compel us in a moment to turn to the *Essay concerning Human Understanding*, as the only Lockeian text that addresses thematically the nature of moral knowledge.

But first let us consider once more the canonical passage in 2.6 which builds the natural law doctrine on the "God's workmanship" premise. 2.6 says nothing about natural rights. It is often assumed that from this passage on natural law, a natural rights doctrine can be inferred.[6] But from the premise that all men are God's property, the duty to preserve any one of them has no priority over the duty to preserve anyone else; the duty is general and categorical. But the passage also makes the assertion that a man has a duty to preserve the rest of mankind under a condition: "when his own preservation comes not in competition." This unmistakable priority of one's own self-preservation—of the right to one's own self-preservation, which has priority over duties to others—has no explanation on the "divine workmanship" argument of 2.6. This difficulty is not removed if we follow Yolton and substitute divine revelation as the cognitional basis; we should hardly expect the Bible to teach us to prefer our own self-preservation to our duty to our fellow men. We have this situation: the theocentric natural law doctrine establishes that we have categorical duties to preserve creatures without priority, but key chapters such as chapter 5 on property assert that men have a right to their own self-preservation that is prior to any duties to others. There is a parallel difficulty about property. The theocentric natural law teaches us that we are the property of God; but chapter 5 asserts that "every man has property in his own person. This nobody has any right to but himself" (2.27). Efforts to remove this well-known contradiction are far from successful.[7] We need then a different inquiry into the origins of natural rights.

Readers of Leo Strauss and certain of his students, especially Richard Cox, will recognize these difficulties. Strauss sought to preserve the intention of Locke to give a philosophical account of natural law on the basis of natural reason alone, as so many Locke texts require.[8] However, instead of holding that from natural law are derived natural rights, as most scholars have tried to do, Strauss sought a movement of thought that goes from natural rights to natural law. His course of interpretation is not without its difficulties. Strauss began his account of natural right with the *Essay*, but without clearly relating it to the extensive discussion of the demonstrative nature of morality in the *Essay*.[9] He drew attention to Locke's distinction of two types of communication, philosophical discourse and civil discourse, and suggested that the former be applied to the *Essay* and the latter to the *Two Treatises*; but this heterogeneity was scarcely reflected in his proof of Locke's argument for natural right. We

shall now turn to the *Essay*, for all agree that the form that moral knowledge can take, as well as the hedonist view of the good, are set forth primarily in that work.

THE CHARACTER OF THE *ESSAY*

It has always been difficult to understand the relationship between the *Essay concerning Human Understanding* and the *Treatises of Government*.[10] Locke published both books in 1690. He put his name on the title page of the *Essay*, but to his dying day refused to acknowledge his authorship of the *Treatises*. He thereby underscored the difference between the two books. The *Essay* is theoretical in treatment, and skeptical in conclusion: it seeks to establish the sources and limits of human knowledge, but does not claim to know a single natural being, or demonstrate that we have a single moral obligation. The *Treatises* are practical and polemical, but their starting point is dogmatic: the theocentric natural law is simply posited, its basis unclarified, as we have seen. As we expect to establish, the *Essay* is elusive because it argues premises without showing what they are premises of. The *Treatises* are elusive because they state conclusions without hinting that their premises are mainly in the *Essay*. The *Essay* is not skeptical; the *Treatises* are not dogmatic.

Locke begins the *Essay* by acknowledging the new authority of modern natural science in the person of that great "master builder," Isaac Newton. Locke's is the first post-Newtonian philosophy: the first, that is, in which modern natural science is comprehensive and mathematical, unifying both terrestrial and celestial motion, and armed with the formal rigor of mathematical demonstration. Yet Locke insists from the outset, and often repeats, that it is morality or action that is "the great business of mankind" (2.22.10). "Our business here is not to know all things, but those which concern our conduct" (1.1.6). Thus the highest theme of the *Essay* is moral knowledge (1.1.6). Locke's highest theme is more fundamental, humanly speaking, than the natural philosophy of Newton. Furthermore, in the final book of the *Essay*, Locke contends that "natural philosophy is not capable of being made a science" (4.12.10). On the other hand, Locke repeatedly asserts that morality is capable of being a demonstrative science. He never suggests that the demonstrative morality is just a possible program; he even gives a sample demonstration of the proposition "Where there is no property, there is no injustice" (4.3.18). Thus both humanly speaking and scientifically speaking, Locke stakes out a claim to surpass that master builder of the commonwealth of learning, Isaac Newton. A problem that besets Locke's goal can already be

anticipated. In working out his own demonstrative morality, Locke cannot afford to ignore the new natural science as he addresses the nature of the human, even though this natural science is not strictly scientific. Will not the unscientific premises from natural science corrupt the scientific character of morality?

EMPIRICISM

Locke is the founder of empiricism. Empiricism gets its name from the answer he gave to the question, whence has the human mind all the materials of reason and knowledge? "I answer, in one word, from experience" (2.1.2). This seems to echo the proud claim of modern thought that we have learned to start with the facts, and submit all our theories to the arbitration of the facts. But "experience" and "fact" are chameleon words; or they are "theory-laden," as we have learned to say. We have to pay attention to Locke's empiricism because it is stamped with the impress of modern science, and leads to the denial that we can know human nature. The hypothesis we propose is that empiricism is the vehicle by which natural science puts its stamp on modern natural right.

Locke says that what we experience are not things, not wholes, like dogs, people, or trees, therefore not things of certain kinds or classes. Rather, what we experience are qualities, single or simple qualities, out of which the human mind composes, literally makes, the idea of a thing or a whole. After this act of composition language enters ex post facto: we apply the name to the thing. Locke is talking about what happens in our sensing or "sense perception." His view is the opposite of the one with which Aristotle almost begins the *Physics*: "It is a whole that is best known to sense-perception" (184a25–26). First we sense that what is before us is a man, and not a tree; and language facilitates this priority of the whole; a small child begins by calling all men "father." Locke objects that this Aristotelian way relies on the authority of popular, nonscientific usage of words. All we ever take in through the senses, he maintains, are single qualities, and if we are careful about what we find in the mind, we must distinguish between our "simple ideas," which are of single sense qualities, and our "complex ideas." We have no organ for apprehending sensible wholes; we make wholes out of simples. The red, the round, and the smooth of the apple enter the mind separately as simple ideas. We do not confuse them; we could not invent them; and they are not separate because we abstract the one from the others, for that presupposes that we have already perceived their difference. In brief, Locke's empiricism states that our experience is all and only of "simple ideas," not things.

All the simple ideas are on a par: there is nothing more essential or accidental to one single quality than to another. So when we compose the simples into the composite idea of a whole, there is a perfect equality of all natural properties. This democracy of the properties is the first political meaning of Locke's empiricism. Any simple idea that you are going to include in the composite idea of, say, "man," has to be an observed property, certainly, but what men have in common with each other is not more "essential" to being human than what they have in common with gerbils or what have you. If all natural properties are equal, then none is essential. Therefore, you can't stop after observing a hundred or a thousand qualities, because you have no right to exclude any, even the most trivial. To know the real essence of man would require that all the qualities and even the molecules be stated.

We need a brief historical flashback to grasp the scientific origin of this democracy of qualities. I regress to Francis Bacon's book on scientific method, the *New Organon* of 1620. Bacon said that the basic mistake is to begin with our ordinary experience of kinds of beings and their natures, as Aristotle had done. Rather we should begin with the distinction between laws and beings.[11] If you start with the kinds of beings, then you will end with the forms of the kinds, the form of a man, of a rabbit, of a star, and so on. The Aristotelian tries to understand all phenomena in terms primarily of the forms. But Bacon observed that there are significant phenomena that cut across the kinds; they are kind-neutral, so to speak. For example, heat, light, and gravitation. Heat isn't differentiated according to kind; the heat of a man, a rabbit, and a star is exactly the same phenomenon, and we must seek for the one underlying law of heat, which is the same everywhere in the universe, a law of which Aristotelians had never dreamed. There is, then, a basic ontological division of nature into laws and beings. We shall understand a being—a thing of a certain kind—as a collection of qualities, or what Bacon called "simple natures," all of which are on a par. Heat is a simple nature we find in an animal; the scientific task is to find the underlying law of each simple nature, and presumably we shall be able to know not only laws, but also the beings that fall into kinds. For a being is just a collection of qualities, that is, simple natures.[12] Bacon is thus the source of the basic scientific ontology of laws and beings, as well as of the democracy of the properties of beings. He devised a method of discovering laws; he offered no method of understanding beings—for example, human beings. He offered only a tentative suggestion as to how one puts together nature as a system of laws with nature as a system of beings. He fathers a one-sided natural science, whose paradigm is a system of laws. For it is knowledge of laws that makes man master over nature; the benefit of mastery outweighs the possibly permanent ignorance of the human to which this science commits us.[13]

Locke, the member of the Royal Society, is the heir of Bacon's endeavor. He takes over the democracy of the properties, which pervades every part of his thinking. Descartes had taught him that you cannot trust in the naïve deliverances of the senses. Locke replies that you can trust in the simple ideas given by the senses. Nobody confuses warm with blue, or color with smell. In Bacon, a thing is a collection of simple natures; in Locke, the complex idea of a thing is formed from a collection of simple ideas. Locke talks about the beings or what he calls "substances"; he leaves to Newton the science of the laws of nature. His natural world is composed of beings and laws, the same as in Bacon and Newton. But the distinction of beings and laws was made in modern thought when Bacon resolved to neglect the understanding of the beings and the unity of beings with laws. Not understanding, but mastery of nature, is the goal. Thus the empiricism of Locke is from the start conditioned by that notion of "subduing nature" which we of course recognize as the basic character of labor in Locke's chapter on property. There is another consequence: the basic opposition between the "theoretical" *Essay* and the "practical" *Treatises* is becoming effaced.

HEDONISM

Locke is a hedonist; this no one denies. His hedonism is of the modern type first established by Hobbes. Ancient hedonism said that the good is the pleasant, and that the highest good, or *summum bonum*, is the life that is most pleasant by nature, the philosophic life. The modernity of Hobbes's hedonism consists in denying that nature is a standard or norm; nature must be mastered; nature is hostile or indifferent to men. Locke agrees. We can say that both pillars of his philosophy, his empiricism and his hedonism, bear the impress of the Baconian mastery of nature.

Yet Locke deviates from Hobbesian hedonism in a significant manner. Hobbes thought that pleasure is but an "appearance" whose underlying reality is "motion."[14] That is, for Hobbes hedonism is part of a system in which the psychological experience of pleasure must be validated by its conformity to bodies and their motions. For Hobbes philosophy still includes the science of bodies. Locke's empiricism, on the other hand, purports to be an account of experience; it leaves the laws of nature to Newton and Huygens. It does not try to explain the bodily physiology that underlies the ideas in the mind. God could make matter think, Locke says grandly; for the empiricist it is not necessary to know whether he really did so or not. Empiricism strives to remain neutral to the question whether all is material or not; the self, says Locke, "is that conscious thinking thing (whatever substance, made up of whether spir-

itual, or material, simple, or compounded, it matters not)" (2.27.17). Empiricism can dispense with metaphysical foundations because it has its foundation in the simple ideas. And Locke is absolutely certain that pleasure is a simple idea, and pain is a simple idea. And since all simple ideas are adequate and true—they are always founded on something real to which they correspond—Locke's hedonism is built on the solid rock of the simple ideas. Moreover, he defines happiness exclusively in terms of pleasure: it is the "utmost pleasure we are capable of" (2.21.42). It follows that happiness, too, is grounded in simple ideas. So that while Locke follows Hobbes in denying that we can know the *summum bonum*, nevertheless happiness and the "pursuit of happiness" have a reality they entirely lack in Hobbes.

Hobbes had said, "there is no such *finis ultimus*, utmost aim, nor *summum bonum*, greatest good, as is spoken of in the books of the old moral philosophers."[15] He explains that we can never be secure in the future enjoyment of what we now have, nor can we ever guarantee that we will obtain what we desire in the future. In the parallel passage in Locke we read: "The philosophers of old did in vain enquire, whether *summum bonum* consisted in riches, or bodily delights, or virtue, or contemplation: and they might have as reasonably disputed, whether the best relish were to be found in apples, plumbs, or nuts" (2.21.55). In Hobbes there is no *summum bonum* because insecurity is invincible; in Locke, it is because we are all individuals, each with a "relish" for his own unique happiness. This conclusion follows from the democracy of properties; it arises also from observation. To know the *summum bonum* would be to know the nature of man, that is, a composite idea that can never be adequate and true. Thus, one and the same distinction, between simple and complex ideas, enables Locke to say that we can know pleasure as the good, but we cannot know happiness as the highest good. This does not mean that "happiness" is an empty concept: it has a determinate and particular content that each man's individual nature has determined for him. Nature determines each man to his own "real bliss" with an individuality and reality quite absent in Hobbes.

But the basic thesis of hedonism has not yet been addressed: why is the good identical with the pleasant? Pleasure is a simple idea—without that thesis Locke's philosophy collapses. Locke assumes that pleasure is always single, always distinct from the sensation of pain, which often accompanies it, and also from the sensation of whatever it is that is pleasant. There is a harder difficulty: what is the relation of the idea of pleasure to the idea of good? Is not the thesis that the good is the pleasant some kind of composite that we have made of two quite heterogeneous notions? There is no idea of the good. Locke resolves this difficulty by making the pleasant the desirable and identifying the good, behaviorally, as it were, with the desirable. The pleasant,

more emphatically, is the only object that we do or can desire. Pleasure necessitates, and happiness, as "utmost pleasure, necessitates absolutely." Hedonism is therefore not a way of life or a "value system" for which we can opt: it is that way by which we all live, naturally and of necessity. The motivation for what we do is at the same time the justification (2.2, especially 42, 51–56).

MORALITY

It is hedonism thus understood that dictates Locke's view of morality, to which I now turn. We shall need as well the distinction of simple and complex ideas. Hedonism and empiricism are the twin pillars of Lockeian morality.

Hedonism is the theory of the good; morality is the theory of the "morally good." Morality is therefore a branch of hedonism, as becomes clear from the definition of the "morally good." "Morally good and evil . . . is only the conformity or disagreement of our voluntary actions to some law, whereby good or evil is drawn on us, from the will and power of the law-maker" (2.28.5). The good and evil the lawmaker employs is that pleasure and pain which is reward and punishment. Law without the sanctions of pleasure and pain is absurd: "It would be in vain for one intelligent being, to set a rule to the actions of another, if he had it not in his power, to reward the compliance with, and punish deviation from his rule, by some good and evil, that is not the natural product . . . of the action it self" (2.28.6). We cannot choose to obey the law because it is right or just in itself; we can obey only to avoid pain and gain pleasure. There is nothing in Locke's universe that is choiceworthy for its own sake, as distinct from the pleasure or pain that is consequent. So the ultimate opponents will be those philosophers who believed that virtue, or the dignity of man, or the beautiful, is choiceworthy for its own sake. Morality is part of the hedonistic calculus because the reason for obeying the law is the same as our justification for doing everything we do: seek pleasure, avoid pain.

If the "morally good" is conformity to law, then the moral is the legal. This reminds us of the thesis that the just is the legal, which is the view most obviously present in any society that demands that we obey the law. We are inclined to object that the law is sometimes unjust; the moral ought to be something higher and unchangeable that is anterior to the law, which humans are always changing.

Locke's answer runs something like this: the problem of morality has always been its impotence. Immorality too often goes undetected, or unpun-

ished, or both. That is a kind of proof that the moral standard, that is, "virtue," is too high for most men to attain. First, then, we must lower the standard, at least if morality is to be socially effective. And second, morality must be located in that law whose infractions are most easily detected and whose sanctions are certain. Of course Locke has already lowered the standard, if the reason for obeying the law is just to avoid punishment. But hedonism thus far has not told us which law, among the many sorts that punish infractions, is the law that the morally good man obeys. And Locke knows that obligation to obey the law for most men requires far more than the hedonist calculus. He considers three possible types of obligation in Book 1 of the *Essay* (1.3.5). If we ask, why should a man keep his compacts? we get three different answers, from a Christian, a Hobbist, and a heathen philosopher. The list of spokesmen is comprehensive—medieval, modern, and ancient.

"A Christian, who has the view of happiness and misery in another life . . . will give this as a reason: Because God, who has the power of eternal life and death, requires it of us." Note that Locke implicitly reduces the Christian motive to the hedonist calculus.

Second, the Hobbist will answer: "Because the publick requires it, and the Leviathan will punish you, if you do not." What Hobbes should have said is, "because individuals who made the compact of civil society require it, and Leviathan will punish you." Hobbes, from Locke's perspective, is an incompetent hedonist. His hedonist theory of the compact is all stick and no carrot.

Third, "if one of the old heathen philosophers had been asked, he would have answer'd: Because it was dishonest, below the dignity of a man, and opposite to vertue, the highest perfection of human nature, to do otherwise." Of the three positions, the heathen philosopher's view is characterized with the most eloquence: Locke must show that he is fully aware of the most radical alternative to his own position; only the heathen philosophers were obligated by something good in itself.

The three types of obligation in Book 1 become clearer in the parallel treatment of three kinds of law, in Book 2 of the *Essay*. The Christian corresponds to the eternal law known by divine revelation or natural reason; the Hobbist corresponds to the civil law; and the heathen philosopher corresponds to the third kind of law, the law of reputation, which was even called "the philosopher's law" in the first edition.

After Locke defines moral goodness as obedience to law in Book 2, we expect him to tell us which law that is. Instead he tells us that there are three kinds of laws, divine, civil, and the law of reputation. The remarkable implication is that moral goodness is obedience to any one of them. We have to stay with that implication for a while to see where Locke is going. The divine law is the law "which God has set to the actions of men, whether promulgated

to them by the light of nature, or the voice of revelation" (2.28.8). We are not surprised to read that the divine law is "the touchstone of moral rectitude," because Locke had said earlier that the "true ground of morality" is the will and law of a God, "who sees men in the dark" and rewards and punishes mankind, if not in this life, at least in another (1.3.6). But actually Locke's position has altered. In the earlier context he said that they "forsake the truth" who "deny that there is a law, knowable by the light of nature; i.e. without the help of positive revelation" (1.3.13). In the later passage, the divine law is no longer clearly knowable without revelation, but now it is a possible part of political theology since it is knowable by divine revelation or natural reason. This is a demotion: the proof of this is not only the departure from the emphatic rationalism that says that "reason must be our last judge and guide in every thing"; the proof is rather that the divine law proves to be the most defective of the three laws, from the standpoint of moral goodness, because it offers the worst guarantee of rewards and punishments. "The penalties that attend the breach of God's laws, some, nay, perhaps, most men seldom seriously reflect on" (2.28.12). Or if they do reflect on God's law, it tends to be a matter of deathbed reconciliation, suggests Locke. He is not questioning the truth of Christianity; he is questioning the effective truth of a Christian belief in a God-given law. He is not denying that it is an effective truth for some, and he sometimes says that it is true for him; but he denies that it is effective for most.

The civil law is not encumbered with the postponement of pleasure and pain to the afterlife. Human reason, as Locke often points out, cannot prove that there is an afterlife, but it can easily establish that speeders often get traffic tickets and murderers often receive jail sentences or worse. The civil law "no body over-looks: the rewards and punishments, that enforce it, being ready at hand, and suitable to the power that makes it" (2.28.9). It protects "the lives, liberties, and possessions, of those who live according to its laws"—those are its rewards. Its punishments are that it takes away "life, liberty, or goods" from the disobedient. Still men flatter themselves, Locke observes, that they can break the laws of the commonwealth with impunity.

But there is a third kind of law that is inescapable, the "law of opinion or reputation." In all "nations and societies" "virtue and vice are names pretended . . . to stand for actions in their own nature right and wrong" (2.28.10). Locke is launching his attack on the virtue of the heathen philosophers, just as Machiavelli and Descartes and the whole pantheon of modern philosophers had done before him. Ancient moral virtue is being reduced to opinion. Did the ancients not appeal to praise and blame as evidence of, or corroboration for, the fact of virtue? But "nothing can be more natural, than to encourage with esteem and reputation that, wherein every one finds his advantage; and

to blame and discountenance the contrary" (2.28.11). What is natural is hedonism, which often gets called utilitarianism.

The neutrality with which Locke sets forth the three kinds of law has this purpose: the lawgiver, whom Locke is addressing, must take account of all the forms of law to which men give their allegiance, since he may have to effect some combination of belief for the true moral law. Because morality is legality, the lawgiver must be a student of that part of jurisprudence which is neutral to the opposing kinds of law, as well as to that part which is not. This neutral jurisprudence is just what Locke calls the demonstrative morality. Locke does not commit the absurdity, sometimes alleged, of claiming that all morality can become a demonstrative science; only "a great part of morality" (4.12.8) has that possibility. Since morality is law-abidingness, it is mostly composed of two sorts of concepts required by a theory of law, one absolute, the other relative. You need to stipulate the nature of actions or practices by precise definitions—murder, duelling, polygamy: these Locke calls "positive absolute ideas"; and you need the relative concepts that bring these definitions into conformity or disagreement with the clauses of the laws (2.28.15). Both sorts of concepts, as well as the laws themselves, are cases of "complex ideas," that is, such combinations of simple ideas as are devised by the human mind. They are not capable of being true or false; we require of the definition of manslaughter, as distinct from first-degree murder, not that it be true or false, but that it be good or bad from the standpoint of the purpose of the law. A demonstrative morality is possible just to the extent that we are concerned with stipulated definitions and their relationships; this is the common ground Locke alleges between morality and mathematics.

As an example, consider the relations between the state of nature, the state of war, and civil society. These are "positive absolute ideas." They are defined by stipulations, not argued from premises, and certainly not derived from observation. The state of nature is characterized by the absence of a common judge and the absence of any law but the law of nature. Civil society is defined by the presence of a common judge and civil law. What then shall we determine about the state of war, which is defined by the presence of force used without right? Locke certainly suggests that the state of nature is simply peaceful, in contrast to the state of nature in Hobbes's account, which is a panorama of bellicosity. But if we follow the deduction from the definitions, we see that it is quite possible for force to be used without right both in the state of nature and in the state of civil society. Locke makes the deduction for us in *Second Treatise* 19, where he says that the state of war can obtain both where there is and where there is not a common judge. This deduction is an application of the demonstrative morality. The *Second Treatise* illuminates the *Essay*: positive ideas like

"state of war" do not require that they be instantiated at a particular time, only that it be possible for them to be so.

By using these illustrations of the demonstrative morality from the *Second Treatise*, I do not wish to imply that we have proved that it is the civil law to which the morally good man must conform in the *Essay*. Indeed, after discussing the three kinds of law in *Essay* 2.28, Locke concludes the chapter by noting that he must now abandon his neutrality: we must know whether the rule or law by which actions are measured is "true or false." This, he says, is "another enquiry" (2.28.20). The current vogue of the divine law as the true law depends on total neglect of this demand for "another enquiry."[16] The inquiry into the true law would be a proof that there is a law that obligates us, whether divine, civil, or that of opinion. This demand of Locke's for "another enquiry" into "the true law" is the dramatic climax of the *Essay*. For there is no sign, in the rest of the *Essay*, that this inquiry is ever undertaken. Obligation: this is the problem that the demonstrative morality in the *Essay* cannot address. Locke has not yet shown that there is a "true law" to which we, in virtue of our nature, are obligated.

THEOCENTRIC NATURAL LAW

The opinion has long been accepted that for Locke the true moral law is the theocentric natural law. Obviously, we have been all along opposing this opinion; a summary of reasons for this objection will now be appropriate. In the *Essay* the theocentric natural law is called "the true ground of morality," which is "the will and the law of a God, who sees men in the dark" and rewards and punishes obedience and disobedience, at least in the afterlife (1.3.6). In the *Second Treatise*, in 6—the "canonical text"—the theocentric natural law appears in a somewhat different perspective, utilizing the workmanship argument. What are the difficulties confronting the theocentric view?

First, Locke never attempts to give a proof evident to natural reason of the theocentric natural law. Here we agree with Yolton and many others.

Second, the theocentric natural law cannot be based on divine revelation, as Yolton has proposed. That would contradict Locke's statement in *Essay* 1.3 that the natural law is known by natural reason without the aid of divine revelation. The natural law is "plain and intelligible to all rational creatures," he says in *Second Treatise* 124. We cannot follow Yolton in using the later book the *Reasonableness of Christianity* of 1695 as evidence that Locke turned from reason to revelation as a basis for theocentric natural law. In the latest editions of the *Essay*, published after the *Reasonableness*, Locke printed un-

changed the rationalist statements of 1690. It was indeed after the *Reasonableness* appeared that Locke added to the *Essay* its most emphatic rationalist utterance: "Reason must be our last judge and guide in every thing" (4.19.14).[17] Moreover, if the basis of natural law were revelation, we should have to say that, in Locke's eyes, the Bible and hedonism are compatible. We doubt that Locke thought he could be faithful to the Christian tradition while teaching that it is only necessary to obey the Lord God if our calculations of the resulting pleasure and pain support doing so.

Third, if we try to support theocentric natural law by using the workmanship argument of *Second Treatise* 6, we founder on theological difficulties. There is a notable gap in Locke's theology, visible in its major formulations, in *Essay* 4.10. He made no attempt to prove by argument what had normally hitherto been regarded as a miracle, that God has created men. Again, Locke denies at great length in many passages in the *Essay* that the human mind can know infinity, yet clearly God must possess infinite attributes. Leibniz commented on Locke's proof of an eternal thinking, willing being as follows: "If it means that there has never been a time when nothing existed, then I agree with it."[18]

Fourth, if we accept the workmanship argument, whether on grounds of natural reason with Hans Aarsleff[19] or on those of divine revelation with Yolton, we still have not got a basis for natural rights, specifically for preferring my right to self-preservation to the duty to preserve others.

Fifth, morality demands a law, as we saw before, that compels solid and effective belief that it will be backed by rewards and punishments. The divine law, which provides these sanctions mostly postponed to the afterlife, does not meet this requirement on the plane of human belief or on the plane of rational argument. As Locke says, "All the great ends of morality and religion, are well enough secured, without philosophical proofs of the soul's immateriality" (4.3.6).

NATURAL RIGHTS

The quest for "the true law," which we shall now bring to a conclusion, must establish an obligation, that is, a natural law.

It was Hobbes who was the first modern to appeal to nature as a sanction for right, without assuming that nature has purposes, or tends towards good, as in the tradition. Death is by nature the "chiefest evil" of human life. Or if Hobbes never tried to prove that death was the chiefest evil, at least he offered evidence that the fear of death was that passion which is strongest by nature. Men shun death by "a certain impulsion of nature, no less than that whereby

a stone moves downward."[20] This comparison is surely open to question. But at least Hobbes did not argue, as some believe he did, that what men cannot help doing, they cannot be blamed for doing, and therefore have a right to do. We do not have a right to do all that we cannot help doing. But that which our nature shuns as an evil, and shuns more than any other evil, it is right to avoid. And therefore we have a right to self-preservation. And since life is a necessary condition of all else we desire, the right to self-preservation is the absolute natural right. Hobbes utilizes no concept of natural tendency towards good, and no concepts of happiness or pursuit of happiness—all of which we find in Locke.

As we said before, pleasure is only an appearance in Hobbes, but in Locke pleasure as a simple idea is real and true, and so also is happiness as "utmost pleasure." Happiness is knowable in general because it varies individually; nevertheless Locke speaks emphatically of "our true happiness" and of "real parts" of that happiness respective to each (2.21.52). Locke's central assertion now appears: "the inclination, and tendency of their nature to happiness is an obligation," an obligation to take care not to mistake or miss happiness (2.21.52). This natural obligation of each to happiness is a natural necessitation to care for his or her own good, not a moral obligation. The natural obligation to happiness obligates us to the pursuit of happiness. It is the force of this obligation to happiness that is the ground of the freedom in each individual. Because of this obligation to our happiness, we can suspend this or that action, deliberate, and change course, and this suspension and deliberation is just the measure of freedom we possess. Locke calls the natural desire of happiness and aversion to misery "innate practical principles, which . . . continue constantly to operate and influence all our actions, without ceasing" (1.3.3). There is little doubt that men have a right to the pursuit of happiness, although Locke does nowhere use that phrase to my knowledge.

To this doctrine of the pursuit of happiness there is no counterpart in Hobbes. But neither is there any counterpart in the *Second Treatise* to the pursuit of happiness in the *Essay*. If there is a right to the pursuit of happiness, then there surely is a right to its necessary condition, the right to life, or self-preservation. But Locke gives no hint that we can cross the boundary in this way from the *Essay* to the *Treatises*, using premises from the first to draw conclusions in the other.

I call this the "boundary problem." Every considerable student of Locke becomes aware of it, but it seems to have gone quite unexplored. In the *Essay* Locke makes a distinction between civil discourse, which is popular, practical, and imprecise, and philosophical discourse, which is precise and can serve knowledge (3.9.3). As said before, Strauss suggested in *Natural Right and History* that the *Second Treatise* contains only the civil presentation

of Locke's political doctrine; this, in turn, suggests that the *Essay* is the philosophical treatment of that doctrine. Strauss himself seems to have traversed the boundary between the *Essay* and the *Treatises* frequently, without stopping to offer explanations. The boundary problem, put simply, is how to cross from the philosophical terrain of the *Essay* to the political one of the *Two Treatises,* while preserving univocity of meaning, or by some kind of continuous argument. It may also be the reverse: practical conclusions may enable us to recognize the philosophical premises as such.

I will mention two examples of the boundary problem before returning to natural right. The first I have already touched on: the use in the *Second Treatise* of "state of nature," "state of war," and so on, which are "absolute positive ideas" in the sense of the demonstrative morality of the *Essay*. Locke obviously could not explain in the *Second Treatise*, as he does in the *Essay*, that such concepts are incapable of being true or false, without destroying the political persuasiveness of the *Treatises.* Still the resulting damage to the *Treatises* seems insignificant.

Consider now the example of the "person." In the *Essay* the person is a very precarious concept because it explains the sameness of an individual over time by that individual's memory of his sameness. This is clearly very problematic; it reminds us of the enormous price Locke has to pay, on the plane of complex ideas like "man," for the restriction of certainty to the simple ideas. But in the *Second Treatise* in the chapter on property we read that "every man has a property in his own person" (2.27). The *Essay*'s precision in speaking of the person is here ignored: the precariousness of the "person" concept gets lost as it is pressed into the service of politics. But perhaps, one might reply, this particular use of "person" is merely a casual one. Still the wider problem is that according to the *Essay* knowledge is strictly only of simple ideas, but "man" is a complex idea, an arbitrary and incomplete combination of simples. The *Treatises* contain several key propositions about man that in their definiteness and universality fall short of the rigorous requirements of the *Essay*. The boundary problem here is one of dilution of theoretical exactness as regards the form of concepts.

The boundary problem, as regards the question of natural rights, exaggerates the Hobbism of the *Two Treatises*. The natural obligation to pursue happiness is an anti-Hobbesian doctrine, a major correction of Hobbes at the very least. Since by this obligation nature directs us with necessity to a real good, "true happiness" or "real bliss" (2.21.52), in a way that no man can avoid, it is beyond doubt that there is a natural right to the pursuit of happiness. The *Essay*, to be sure, does not say this explicitly; it mentions no natural rights of any kind. For this reason the *Essay* never infers any moral obligation. The theoretical character of the *Essay* thereby remains immaculate in the decisive

respect. When now we turn to the *Treatises*, the anti-Hobbesian argument about happiness is unmentioned and not implied; what is offered explicitly is virtually identical with Hobbes's argument for the right of self-preservation in *De Cive* 1. It is a Hobbesian-type argument for the rights to life and liberty, but not to the pursuit of happiness: fortunately the author of the Declaration knew the *Essay*.

The argument starts with the sentence in the *First Treatise* that says that the "first and strongest desire God planted in men," that of "self-preservation," is "the foundation of a right to the creatures" (1.88). If we want to know why this strongest desire is the foundation of a right, we find the missing premise by skipping some 150 pages later to section 168 of the *Second Treatise*, where we read that "God and nature [never allow] a man so to abandon himself, as to neglect his own preservation." The unusual way we have to read this book still needs some explanation.

Nature has implanted the strong desire of self-preservation, but it is reason that teaches men what is necessary and useful for their being. We shall not even enumerate the conclusions that reason infers from this starting point until reason sees that without government and law and a common, acknowledged judge, men remain in a state full of fears and continual dangers, the only remedy for which is civil society. The sum of these dictates of reason, including especially the proper rules for constructing civil society, is what we may call the "law of nature." We may well wonder whether these dictates of reason constitute a law, strictly speaking: their mode is not that of a command but of indication, pointing out to us our interest (2.57). They are hypothetical, not categorical, imperatives: if you will that state of affairs in which your natural rights would truly be available to be enjoyed, then such and such rules for civil society necessarily follow. This law of nature is not theocentric but rather homocentric or even egocentric: "He that is master of himself, and his own life, has a right too to the means of preserving it" (2.172).

FOUNDATIONALISM

We conclude by means of a question: assuming that this homocentric, hypothetical natural law is Locke's "true law," why did he make it so hard, such a tortuous business, in fact such an impossible task, for most readers, to find it? The preliminary answer is: because he must place the theocentric natural law in the foreground, as the basis of his teaching in both the *Essay* and the *Treatises*. Very well; but why give us such an unhelpful starting point?

Locke explains his use of the theocentric thesis in two pages early in the

Essay (1.3.24–26) that are the true preface to every book that he ever published. "If we consider the nature of mankind, and the constitution of humane affairs," we find that "most men cannot live, without employing their time in the daily labors of their callings; nor be at quiet in their minds, without some foundation or principles to rest their thoughts on." Most men naturally desire "foundations" that they come to worship as divine—as identical with, or derivative from, God or gods. Most men think that principles accepted when young or borrowed without examination are "standards set up by God" in the mind. One of the foundational principles is "that principles ought not to be questioned." Thus theocentric foundations, dogmatically accepted and defended, are the natural belief of most of the human race. In order to persuade the foundationalist majority of the human race of the true natural law, Locke obeys the first law of rhetoric: first tell them what they already believe.

Locke now considers the possibility of questioning foundations:

> Who is there . . . that dare shake the foundations of all his past thoughts and actions . . . hardy enough to contend with the reproach, which is every where prepared for those, who dare venture to dissent from the received opinions of their country or party? . . . And where is the man to be found, that can patiently prepare himself to bear the name of whimsical, skeptical, or atheist, which he is sure to meet with, who does in the least scruple any of the common opinions? (1.3.25)

In this passage Locke clearly alludes to the fate of a Socrates or a Bruno, but most of all to himself, and why he wrote his books as he did. He is explaining why he asserted the theocentric foundations, so obtrusive, so pervasive, and so unsupported, that make his books so hard to interpret.

NOTES

"Nature and Natural Right in Locke" was a lecture delivered at a colloquium on John Locke, Department of Government, Harvard University, March 15–16, 1985. It was revised and delivered at the American Political Science Association meeting, August 29–September 1, 1991. References in the text in parentheses are to John Locke, *An Essay concerning Human Understanding*, ed. Peter H. Nidditch (Oxford: Oxford University Press, 1975), by three numbers, for book, chapter, and section; and to John Locke, *Two Treatises of Government*, ed. Peter Laslett (Cambridge: Cambridge University Press, 1966), by two numbers, one indicating the treatise, the other the section. Capitalization and italicization have been modernized.

1. Michael Howard, *War and the Liberal Conscience* (London: T. Smith, 1978), 116.

2. Karl Marx and Frederick Engels, *The Communist Manifesto* (New York: International Publishers, 100th Anniversary Edition, 1948), 36.

3. Ronald Dworkin, *Taking Rights Seriously* (Cambridge, MA: Harvard University Press, 1977), 176–77.

4. Thomas Aquinas, *Summa theologiae* 1–2, q. 94, a. 2.

5. John Yolton, *Locke and the Compass of Human Understanding* (Cambridge: Cambridge University Press, 1970), 169. For a clarification of the state of Locke scholarship, see Michael P. Zuckert, "The Recent Literature on Locke's Political Philosophy," *Political Science Reviewer* 5 (1975): 271–304.

6. Patrick Riley, in *Will and Political Legitimacy* (Cambridge, MA: Harvard University Press, 1982), chapter 3, cites the canonical passage on natural law in *Second Treatise* 6 and refers to the "divine law" in *Essay* 2.28.8, and assumes without discussion that both passages imply the fact of natural rights, although neither alludes to them.

7. John Colman, *John Locke's Moral Philosophy* (Edinburgh: Edinburgh University Press, 1983), 198.

8. Leo Strauss, *Natural Right and History* (Chicago: University of Chicago Press, 1953), chapter 5, 202–51, especially 226–34. Richard H. Cox, *Locke on War and Peace* (Oxford: Oxford University Press, 1960).

9. Strauss discussed the demonstrative morality briefly in his review of W. von Leyden's edition of John Locke, *Essays on the Law of Nature* (Oxford: Oxford University Press, 1954), in L. Strauss, *What Is Political Philosophy?* (Glencoe, IL: Free Press, 1959), 218–19.

10. See Laslett's introduction to the *Two Treatises*, especially "Locke the Philosopher and Locke the Political Theorist," 79ff.

11. See *New Organon* 2.9 for the distinction between "metaphysics" as the science of laws and "physics" as the science of beings in "the ordinary course of nature"; cf. 1.1–7.

12. "The rule or axiom for the transformation of bodies is of two kinds. The first regards a body as a troop or collection of simple natures." *New Organon* 2.5.

13. For the preparation for Baconian mastery of nature in Machiavelli, see Richard Kennington, "Descartes and Mastery of Nature," in *Organism, Medicine, and Metaphysics*, ed. S. Spicker (Dordrecht: D. Reidel, 1978). [Reprinted herein. *Ed.*]

14. See L. Strauss, *Natural Right and History*, 169 n. 4.

15. Hobbes, *Leviathan* chapter 11, beginning.

16. Observe Riley's neglect of the "other enquiry" in the last paragraph of chapter 28, which makes possible his embrace of the divine law as Locke's true moral law. Riley, 88–91.

17. Colman, 138–39, recognizes that the *Reasonableness* represents no departure from the rationalism of the *Essay*.

18. G. W. Leibniz, *New Essays on Human Understanding*, trans. and ed. P. Remnant and J. Bennett (Cambridge: Cambridge University Press, 1981), 436–37. Cf. also Locke, Letter to the Bishop of Worcester, *Works* 3:53–54.

19. Hans Aarsleff, *From Locke to Saussure* (Minneapolis: University of Minnesota Press, 1982).

20. Hobbes, *De Cive* 1.7.

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